P59845PC00 sequence listing
SEQUENCE LISTING

<110>   Expressive Research B.V.

<120>   Modulating developmental pathways in plants

<130>   P59845PC00

<140>   PCT/NL03/00524
<141>   2003-07-17

<150>   EP 02077908.8
<151>   2002-07-17

<160>   110

<170>   PatentIn version 3.2

<210>   1
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<213>   Arabidopsis thaliana

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        35   40   45

Ile Val Ile Leu Gly Val Ala Ala Leu Ile Phe Trp Leu Ile Val Arg
    50   55   60

Pro Arg Ala Ile Lys Phe His Val Thr Asp Ala Ser Leu Thr Arg Phe
65   70   75   80

Asp His Thr Ser Pro Asp Asn Ile Leu Arg Tyr Asn Leu Ala Leu Thr
                85   90   95

Val Pro Val Arg Asn Pro Asn Lys Arg Ile Gly Leu Tyr Tyr Asp Arg
                100   105   110

Ile Glu Ala His Ala Tyr Tyr Glu Gly Lys Arg Phe Ser Thr Ile Thr
            115   120   125

Leu Thr Pro Phe Tyr Gln Gly His Lys Asn Thr Thr Val Leu Thr Pro
        130   135   140

Thr Phe Gln Gly Gln Asn Leu Val Ile Phe Asn Ala Gly Gln Ser Arg
145   150   155   160

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Thr Leu Asn Ala Glu Arg Ile Ser Gly Val Tyr Asn Ile Glu Ile Lys
                165             170             175

Phe Arg Leu Arg Val Arg Phe Lys Leu Gly Asp Leu Lys Phe Arg Arg
                180             185             190

Ile Lys Pro Lys Val Asp Cys Asp Asp Leu Arg Leu Pro Leu Ser Thr
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Ser Asn Gly Thr Thr Thr Thr Ser Thr Val Phe Pro Ile Lys Cys Asp
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Phe Asp Phe
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Leu Asn Leu Ser Ile Arg Asn Ser Lys Ser Ser Ile Gly Ile His Tyr
                35              40              45

Asp Arg Phe Glu Ala Thr Val Tyr Tyr Met Asn Gln Arg Leu Gly Ala
    50              55              60

Val Pro Met Pro Leu Phe Tyr Leu Gly Ser Lys Asn Thr Met Leu Leu
65              70              75              80

Arg Ala Leu Phe Glu Gly Gln Thr Leu Val Leu Leu Lys Gly Asn Glu
                85              90              95

Arg Lys Lys Phe Glu Asp Asp Gln Lys Thr Gly Val Tyr Arg Ile Asp
                100             105             110

Val Lys Leu Ser Ile Asn Phe Arg Val Met Val Leu His Leu Val Thr
                115             120             125

Trp Pro Met Lys Pro Val Val Arg Cys His Leu Lys Ile Pro Leu Ala
    130             135             140
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Leu Gly Ser Ser Asn Ser Thr Gly Gly His Lys Lys Met Leu Leu Ile
145   150   155   160

Gly Gln Leu Val Lys Asp Thr Ser Ala Asn Leu Arg Glu Ala Ser Glu
                165   170   175

Thr Asp His Arg Arg Asp Val Ala Gln Ser Lys Lys Ile Ala Asp Ala
            180   185   190

Lys Leu Ala Lys Asp Phe Glu Ala Ala Leu Lys Glu Phe Gln Lys Ala
        195   200   205

Gln His Ile Thr Val Glu Arg Glu Thr Ser Tyr Ile Pro Phe Asp Pro
    210   215   220

Lys Gly Ser Phe Ser Ser Ser Glu Val Asp Ile Gly Tyr Asp Arg Ser
225   230   235   240

Gln Glu Gln Arg Val Leu Met Glu Ser Arg Arg Gln Glu Ile Val Leu
            245   250   255

Leu Asp Asn Glu Ile Ser Leu Asn Glu Ala Arg Ile Glu Ala Arg Glu
            260   265   270

Gln Gly Ile Gln Glu Val Lys His Gln Ile Ser Glu Val Met Glu Met
        275   280   285

Phe Lys Asp Leu Ala Val Met Val Asp His Gln Gly Thr Ile Asp Asp
    290   295   300

Ile Asp Glu Lys Ile Asp Asn Leu Arg Ser Ala Ala Ala Gln Gly Lys
305   310   315   320

Ser His Leu Val Lys Ala Ser Asn Thr Gln Gly Ser Asn Ser Ser Leu
            325   330   335

Leu Phe Ser Cys Ser Leu Leu Leu Phe Phe Phe Leu Ser Gly Asp Leu
            340   345   350

Cys Arg Cys Val Cys Val Gly Ser Glu Asn Pro Arg Leu Asn Pro Thr
            355   360   365

Arg Arg Lys Ala Trp Cys Glu Glu Glu Asp Glu Glu Gln Arg Lys Lys
    370   375   380

Gln Gln Lys Lys Lys Thr Met Ser Glu Lys Arg Arg Arg Glu Glu Lys

385   390   395   400

Lys Val Asn Lys Pro Asn Gly Phe Val Phe Cys Val Leu Gly His Lys
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ataaactacc aaagtatcaa gctaatgtaa aaattactct catttccacg taacaaattg   180

agttagctta agatattagt gaaactaggt ttgaattttc ttcttcttct tccatgcatc   240

ctccgaaaaa agggaaccaa tcaaaactgt ttgcatatca aactccaaca ctttacagca   300

aatgcaatct ataatctgtg atttatccaa taaaaacctg tgatttatgt ttggctccag   360

cgatgaaagt ctatgcatgt gatctctatc caacatgagt aattgttcag aaaataaaaa   420

gtagctgaaa tgtatctata taaagaatca tccacaagta ctattttcac acactacttc   480

aaaatcacta ctcaagaaat atg aag aag atg aat gtg gtg gct ttt gtt acg   533
                       Met Lys Lys Met Asn Val Val Ala Phe Val Thr
                        1   5   10

ctg atc atc tct ttt ctt ctg ctt tct cag gtaaactgtt aaaaccattt   583
Leu Ile Ile Ser Phe Leu Leu Leu Ser Gln
            15   20

tcaagactac cttttctcta tttcagacaa accaaagtaa aacaatgaaa aatctctctg   643

gtctttcata g gta ctt gca gag ttg tca tca tcc agc aac aat gaa act   693
             Val Leu Ala Glu Leu Ser Ser Ser Ser Asn Asn Glu Thr
                         25   30

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tcc tct gtt tct cag gtaagagtga tacaaaaaca tactaaacaa actttcaaga        748
Ser Ser Val Ser Gln
35

gagtaatata taaggaaatg ttggcttctt ttttttgttg ctaatcag acg aat gac      805
                                                      Thr Asn Asp
                                                       40

gag aac caa act gcg gcg ttt aag aga aca tac cac cat cgt cca aga       853
Glu Asn Gln Thr Ala Ala Phe Lys Arg Thr Tyr His His Arg Pro Arg
         45              50              55

atc agttagtcta ctctttcaac actctaattc ctttgttcta agtatttttt           906
Ile

ttgcccccca caaccttttt tttattaaat gagccaattt ttatagat tgt ggg cat     963
                                                       Cys Gly His
                                                        60

gca tgc gca agg aga tgc agt aag aca tcg agg aag aaa gtt tgt cac     1011
Ala Cys Ala Arg Arg Cys Ser Lys Thr Ser Arg Lys Lys Val Cys His
         65              70              75

aga gcc tgt gga agt tgt tgt gcc aag tgt cag tgt gtg ccg ccg gga    1059
Arg Ala Cys Gly Ser Cys Cys Ala Lys Cys Gln Cys Val Pro Pro Gly
 80              85              90

acc tcc ggc aac aca gca tca tgt cct tgc tac gcc agt atc cgt aca    1107
Thr Ser Gly Asn Thr Ala Ser Cys Pro Cys Tyr Ala Ser Ile Arg Thr
95              100             105             110

cat ggc aat aaa ctc aaa tgt cct taaaagactt ctcatttctc aactatagtc   1161
His Gly Asn Lys Leu Lys Cys Pro
                 115

tcatcttctg attatgtttc ttcttttgtt atgttgcatg tgtgatgtgt gagcttatta  1221

ttatgttgat tgttgacata attcaactat ataatttgta tcgattccga ataataagat  1281

gagtgatttt attggctatt aagttttttt tttttttttt tgggcacaat ggctattaag  1341

ttttaaacat ctgattttat tggttacaaa aaacaacaaa gtttcatttt catattaaca  1401

caaaatctcc atacatatta ccaaaccaaa aaaatacaca aggggagag agaccaacgg   1461

ttcttggttc agagtttgca tcttgtttga gccgtcaccg tttcttagac ttaacagcca  1521

caacaccttt ataaagcttc acgcgatcct tcaacgcatc tcgccgaggc cgagccacct  1581

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Leu Leu Leu Ser Gln Val Leu Ala Glu Leu Ser Ser Ser Ser Asn Asn
            20              25              30

Glu Thr Ser Ser Val Ser Gln Thr Asn Asp Glu Asn Gln Thr Ala Ala
            35              40              45

Phe Lys Arg Thr Tyr His His Arg Pro Arg Ile Cys Gly His Ala Cys
        50              55              60

Ala Arg Arg Cys Ser Lys Thr Ser Arg Lys Lys Val Cys His Arg Ala
65              70              75              80

Cys Gly Ser Cys Cys Ala Lys Cys Gln Cys Val Pro Pro Gly Thr Ser
                85              90              95

Gly Asn Thr Ala Ser Cys Pro Cys Tyr Ala Ser Ile Arg Thr His Gly
            100             105             110

Asn Lys Leu Lys Cys Pro
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<223>   conserved cysteine motif (exon 3)

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tttgtgttta tgtttgattt tacgttttta tatgtaaata agatatttta cgaattatgg     180

ttttatttgg gtagaagttg tagaatgact taaacaatca agtggcagaa tgagatatat     240

aaagtaatat aatatatgta ccgttattaa cttattgtac atgtgaatga ggaagcttac     300

acacacacac cttctataaa tagctgacaa aactggttgt tacacacaac acattcataa     360
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atctctcaaa gtaagaacta agagctttac tacagtccta ctctctacac atcttctctc      420

tctctcaaga gctagtcatg gccaaactca taacttcttt tctcttactc acaattttat      480

tcactttcgt ttgtctcact atg tca aaa gaa gct gag tac cat cca gaa agt      533
                        Met Ser Lys Glu Ala Glu Tyr His Pro Glu Ser
                         1               5                  10

gtaagttttt attttttggt aaaatagaaa gtgtaagttt tataattcat tcaattgttt      593

ttgcctttcc ctttctattt attgctataa atctaatacc cgcgttaaaa tttgttttga      653

aattaaacag tat gga cca gga agt ctg aaa tca tac c gtaagtaaaa           701
            Tyr Gly Pro Gly Ser Leu Lys Ser Tyr
                     15                  20

acttcttctt cttttatgaa tcttgtttct tattatatat caaataaaaa ctcgattatc      761

atgattgcag aa tgt gga gga caa tgc aca agg aga tgt agc aac aca         809
              Gln Cys Gly Gly Gln Cys Thr Arg Arg Cys Ser Asn Thr
                         25                  30

aag tat cat aag cca tgc atg ttc ttc tgc caa aag tgt tgt gct aaa      857
Lys Tyr His Lys Pro Cys Met Phe Phe Cys Gln Lys Cys Cys Ala Lys
    35                  40                  45

tgc ctt tgt gtc cct cca ggc acg tac ggc aac aaa caa gtg tgt cct      905
Cys Leu Cys Val Pro Pro Gly Thr Tyr Gly Asn Lys Gln Val Cys Pro
50                  55                  60                  65

tgt tac aac aac tgg aag act caa caa ggt gga cca aaa tgt cca          950
Cys Tyr Asn Asn Trp Lys Thr Gln Gln Gly Gly Pro Lys Cys Pro
            70                  75                  80

taaacaaaaa cattgagaga gaaaccccaa tctgtttcct attttatta attatttcca     1010

gtatgctttt gttgtcgtga tggttaaatt atagtgtttt tgcaggtatc atttatcatc     1070

gataaacaat atcatataaa atcttctatg tttctttcac gttttgtttc ttttgttgta     1130

gtcaatacac gaaatgtgta tggaccttct aattaggaat atataaaatt ttatttatta     1190

attagataat ctttcgtata gttaaaattc caaggattac ttttgattcg tttgggacaa     1250

tctattttat attttacttt ctaagtttgt ataactatat cttaaaagtg ttagacagag     1310

tcctaatgat tttagtataa ttgttactat ttagttacgc ttcgaaaatt tggaactttt     1370

ccaaagtggt ctatatcaat ttgattcact aatctgcgct tccttctagt tttttacaat     1430

tatggagatt tttcgacgat gat                                            1453
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1               5                  10                  15
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            20              25              30
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Thr Lys Tyr His Lys Pro Cys Met Phe Phe Cys Gln Lys Cys Cys Ala
            35              40              45
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Lys Cys Leu Cys Val Pro Pro Gly Thr Tyr Gly Asn Lys Gln Val Cys
    50              55              60
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Pro Cys Tyr Asn Asn Trp Lys Thr Gln Gln Gly Gly Pro Lys Cys Pro
65              70              75              80
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<223>   propeptide (exon 2)
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<223>   conserved cysteine motif (exon 3)
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atcaatatct attgcaaaaa atatttataa gaatacaaat gaaaaatgat aaaatacaaa       180

tgatttctca attacctaaa aaatataaaa atgtcttact ttattttcag ccactgttgg       240

aaagtacttg caatcatatc gtattttgaa ttataaaact cagaaacaat tattttccct       300

gaaaagttaa aactttttaat aagatattta taaaataaaa agaatagtct agaccgaaaa      360

tggggtcggt tgtccatcca aaggagtgct ataaatagaa ccctccaagt tctcattagg       420

acacaacaac taaaaccaca tttatcatta cagtctgatt tgagctaagt tctctcatca       480

taaactctcc ttggagaatc atg gct att tca aaa gct ctt atc gct tct ctt      533
                         Met Ala Ile Ser Lys Ala Leu Ile Ala Ser Leu
                          1               5                      10

ctc ata tct ctt ctt gtt ctc caa ctc gtc cag gctgatgtcg tacgtctttt      586
Leu Ile Ser Leu Leu Val Leu Gln Leu Val Gln
            15                      20
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tcatcacaaa ctaattatac tcaatataat acttatgttt tcaaaaacat atttctcaca      646

tgttacaaca atattcttgc ag gaa aac tca cag aag aaa aat ggt tac gca      698
                          Glu Asn Ser Gln Lys Lys Asn Gly Tyr Ala
                           25                      30

aag aag atc g gtaattatat gatttttatt aaacctaacg ttaaatttag             748
Lys Lys Ile
         35

agtgagatta ataatctgtg tttttctttc ttgtatatat ag at  tgt ggg agt       801
                                                   Asp Cys Gly Ser


gcg tgt gta gca cgg tgc agg ctt tcg agg agg ccg agg ctg tgt cac      849
Ala Cys Val Ala Arg Cys Arg Leu Ser Arg Arg Pro Arg Leu Cys His
40                  45              50                  55

aga gcg tgc ggg act tgc tgc tac agg tgc aac tgt gtg cct ccg ggt      897
Arg Ala Cys Gly Thr Cys Cys Tyr Arg Cys Asn Cys Val Pro Pro Gly
                60              65                  70

acg tac gga aac tac gac aag tgc cag tgc tac gct agc ctc acc acc      945
Thr Tyr Gly Asn Tyr Asp Lys Cys Gln Cys Tyr Ala Ser Leu Thr Thr
                75              80                  85

cac ggt gga cgc cgc aag tgc cca taagaagaaa caaagctctt aattgctgcg     999
His Gly Gly Arg Arg Lys Cys Pro
             90              95

gataatggga cgatgtcgtt ttgttagtat ttactttggc gtatatatgt ggatcgaata    1059

ataaacgaga acgtacgttg tcgttgtgag tgtgagtact gtattattaa tggttctatt    1119

tgtttttact tgcaagtttt cttgttttga atttgttttt ttcatatttg tatatcgatt    1179

cgtgcattat tgtattattt caatttgtaa taagattatg ttacctttga gtggttgttt    1239

atcatacttt ttttctatgg taagaggttt tggaaaagta tcgagaatga tatataaagt    1299

aattttgata tcgacgcaag atgataacta ctagactagc tgagtataag aatattgatg    1359

tatatatttg cggacaattt tgaatttatt ataccattat ttaatcacga ccatataaaa    1419

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Val Leu Gln Leu Val Gln Glu Asn Ser Gln Lys Lys Asn Gly Tyr Ala
            20                  25                  30
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Lys Lys Ile Asp Cys Gly Ser Ala Cys Val Ala Arg Cys Arg Leu Ser
          35              40              45


Arg Arg Pro Arg Leu Cys His Arg Ala Cys Gly Thr Cys Cys Tyr Arg
      50              55              60


Cys Asn Cys Val Pro Pro Gly Thr Tyr Gly Asn Tyr Asp Lys Cys Gln
65              70              75              80


Cys Tyr Ala Ser Leu Thr Thr His Gly Gly Arg Arg Lys Cys Pro
              85              90              95
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<223> propetide + conserved cysteine motif (exon 2)

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gttatggatt agaccgtatc gatctaaaga tgtcaaagaa aaaaaaatgt ggttgtgtaa     180

agtaaatatg tagattgtgg cggattaaag tatgttttga ttcacatcat tattgttatt     240

ttttcatgaa ttctaaatgt aaagttctta taatcttatg ttactttttа caaattgtaa     300

ggattactct gaaatttggt atcgaattct aagacaaata caaaataaca atgactgaac     360

aagttgataa aacataatgg aaggaataat actgcagttc tattaaatac taaagaagtt     420

ggtagattgg cctataaaag gagaataaag agaccacaag aaggtctatt attcggggac     480

taaagaaagc caagaaaac atg aaa ata ata gtc tcc atc tta gtg tta gcc     533
                     Met Lys Ile Ile Val Ser Ile Leu Val Leu Ala
                      1               5              10

tct ctt ctt cta atc agt tca tct ctt gct tcg gct act ata tca g        579
Ser Leu Leu Leu Ile Ser Ser Ser Leu Ala Ser Ala Thr Ile Ser
          15              20              25

gttggttcta atctcttcaa gaatcttctt ctctctattt tttttttctt cataaagtta     639

gttatgttat gattggttta ggtcacaatt gtttctttat gctttcgttt ccataagaaa     699

aatattacaa atattaacta gaacaacata acatgcaaac gagtaataca aaattcatta     759
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ttatgatcaa aacaatcatg aattagttgg acttatttgt taaattccga aaatctcact    819

aaaataaagt gaacttcatc tacatggctt tagacgcaaa atctttaagg gtatctacac    879

aagtttggaa tgaataattt cttgcgatgg tagtgtagaa ggatctagaa gatccacaag    939

atcattagtg tatcttctag atccttttac attgagaagt gaggagatat ttgttgtatt    999

agaaagaatt atagtgaagt aaattttta actatgtacg atcatttata tacgatactt   1059

ttattaagga tcttgtggat cttctag at  gct ttt ggt agt ggc gcg gta gct   1112
                                 Asp Ala Phe Gly Ser Gly Ala Val Ala
                                          30                      35

ccg gca ccg cag agc aaa gat gga ccg gcg tta gag aaa tgg tgt gga    1160
Pro Ala Pro Gln Ser Lys Asp Gly Pro Ala Leu Glu Lys Trp Cys Gly
            40              45                  50

cag aaa tgt gaa ggg aga tgc aaa gaa gcg ggg atg aaa gat cgg tgt    1208
Gln Lys Cys Glu Gly Arg Cys Lys Glu Ala Gly Met Lys Asp Arg Cys
            55              60                  65

ttg aag tat tgt ggg ata tgt tgc aaa gac tgt cag tgt gtt cct tca    1256
Leu Lys Tyr Cys Gly Ile Cys Cys Lys Asp Cys Gln Cys Val Pro Ser
        70              75              80

ggc act tat ggg aat aag cat gaa tgt gct tgc tat cgt gac aag ctc    1304
Gly Thr Tyr Gly Asn Lys His Glu Cys Ala Cys Tyr Arg Asp Lys Leu
    85              90              95

agt agc aaa ggc act cct aaa tgt cct tgattctatt tctttccaac          1351
Ser Ser Lys Gly Thr Pro Lys Cys Pro
100                 105

caaaaattta aataaatgaa taagagagat ccagtaaact aatataaaac tataaatgga   1411

tcttttgttt atgatttttt ttttttcatt tctattttta cgaatttgtc ttggtctttt   1471

tgaagtaagt ttttaaatat tgaaaagtgc taaaattatg tggaaatcga taatgttaat   1531

gaatgatata atatataagt cctcagtttt tgtaagaaac ttgaatataa ataatatttc   1591

atcaaacata ataaataaat atattgtata attagattgg ctcaaccgat ataaacaatt   1651

gaatcgaatt ttttcttcta aatatttaat catccaaatt tgtattgtac caatgaatga   1711

gatggttatg aggactagaa gatagagagg agaagaacgt gtttggtaaa ataattatga   1771

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cgt                                                                  1834
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<210> 10
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Met Lys Ile Ile Val Ser Ile Leu Val Leu Ala Ser Leu Leu Leu Ile
1               5                   10                  15
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Ser Ser Ser Leu Ala Ser Ala Thr Ile Ser Asp Ala Phe Gly Ser Gly
            20              25              30
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```
Ala Val Ala Pro Ala Pro Gln Ser Lys Asp Gly Pro Ala Leu Glu Lys
            35              40              45
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```
Trp Cys Gly Gln Lys Cys Glu Gly Arg Cys Lys Glu Ala Gly Met Lys
    50              55              60
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```
Asp Arg Cys Leu Lys Tyr Cys Gly Ile Cys Cys Lys Asp Cys Gln Cys
65              70              75              80
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Val Pro Ser Gly Thr Tyr Gly Asn Lys His Glu Cys Ala Cys Tyr Arg
            85              90              95
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Asp Lys Leu Ser Ser Lys Gly Thr Pro Lys Cys Pro
            100             105
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<212>   DNA
<213>   Arabidopsis thaliana
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aattagtaaa aagataaatt ctaaaaaccg aaacaaatct taagttggtg tatatacatc     120

tgcattgacc aacaaaagaa agtagactga aatttatttg aaaatgatct tgtaaaggca     180

tattatatat ttaatttagg aaatgaatgt taaatccttt aaattgtttt gatttcacaa     240

aaggataaag aaatattggt tacatacatc ttaatgtgtt gaccaaaaca aataaaatgt     300

gataagaaac aataaaacca ttttgaccaa agttcttata gttttaatat tctttaattg     360
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tcatttgtta gtgactaata atattacatt aaacctaatg tataaataga agccccatct      420

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tgttttctct gatcactagt atg gct gta ttc aga gtc ttg ctt gct tct ctt      533
                      Met Ala Val Phe Arg Val Leu Leu Ala Ser Leu
                       1               5                      10

ctc ata tct ctt ctt gtc ctc gac ttc gtc cat gcc gat atg gtg           578
Leu Ile Ser Leu Leu Val Leu Asp Phe Val His Ala Asp Met Val
         15                  20                  25

gtacaatttt aacaaccaaa tatattttct tatttgattt tattttttca caacttttgt      638

ctacgttcta atggaatttt tttcaaaata ttcatgcag acg tcg aat gac gcc         692
                                            Thr Ser Asn Asp Ala
                                                         30

cct aaa atc ggtaatatct ctatcatata aacacgtacg ttgaatttct               741
Pro Lys Ile

atatacgtgt gtttaattga agttttggtt ggaaattgta tgtatttgta gattgcaaca      801

gcaggtgcca agag cgg tgc agt ctt tcg agt agg cca aat ctt tgt cac       851
               Arg Cys Ser Leu Ser Ser Arg Pro Asn Leu Cys His
                35              40                  45

aga gcg tgc ggg act tgc tgc gct agg tgc aac tgc gtg gca ccg ggc       899
Arg Ala Cys Gly Thr Cys Cys Ala Arg Cys Asn Cys Val Ala Pro Gly
             50              55                  60

aca tcc gga aac tac gac aaa tgt ccg tgc tat ggt agc cta acc acc       947
Thr Ser Gly Asn Tyr Asp Lys Cys Pro Cys Tyr Gly Ser Leu Thr Thr
         65                  70                  75

cac gga gga cgc aga aa  gtgtccttaa aaactctgtc gctgtttgat             994
His Gly Gly Arg Arg Lys
         80

ttgatttcgt ttataatact ttactttat gagagtaatt gtggttattt tcttgggaat     1054

tattaaaaag caaagaaag agaatgttat acgtcatgtg caactcttcg atctttgttt     1114

tagtgtttat ccaatttgta cttgttggtt tggttcctgg ttaacattag gtctgaaaag     1174

gtattgtttt tcattataca attcactaaa taggcatcgt acttgcatat aaaataaaga     1234

atgaagagag aagtaa a aga gtt ttc ttt ttt tac tcatggaagt taggcaatgg     1289
                   Arg Val Phe Phe Phe Tyr
                    85                  90

gtttaaatat ggtaacaaca gaattggagg ggacttaatg aactatgacg taaaactgag     1349

agcgattgaa tatgtaacgt taccaacaat accaataaaa ttatgaaaga tagtatatga     1409

aattacgttt aattaatgtt tccgggttga atgtattata tatagaagta acagtacgat     1469

ttttattaca tttttgtaca agattcctag aaaggtataa cctctataaa gttaataata     1529

gtcttgagtc ttgactcttc gaggcaaata aattcaccgc ataattaatc gttcaactat     1589
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tattctatat tctatataac atgagcttca acaaaagaag catcaatcat atcttcaaca   1649

gtatactgca gtgtaatgta acatattcaa gatcaaaccg gacaaaaaag caagataccg   1709

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cgcttgcaca atc   1782

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Val Leu Asp Phe Val His Ala Asp Met Val Thr Ser Asn Asp Ala Pro
            20   25   30

Lys Ile Arg Cys Ser Leu Ser Ser Arg Pro Asn Leu Cys His Arg Ala
        35   40   45

Cys Gly Thr Cys Cys Ala Arg Cys Asn Cys Val Ala Pro Gly Thr Ser
    50   55   60

Gly Asn Tyr Asp Lys Cys Pro Cys Tyr Gly Ser Leu Thr Thr His Gly
65   70   75   80

Gly Arg Arg Lys Arg Val Phe Phe Phe Tyr
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aaaattaatt gtttatgtta atatatttac tccttaatcc tttatattaa aattgtataa     180

tgcatgtagt taataaattg ttttccaaaa ttcattcata attttattcc taaattattt     240

tggtcaagaa aacacatctt tgaataatta aatgcttcct tgtatttgat aatttcttga     300

tattttaaaa taccttctat actatgccaa tgttattggt tataaatagg tttaacattg     360

atcctgaaat atatcataag aaaatcaaaa gtgaaataag agatcaaa atg atg aag     417
                                                      Met Met Lys
                                                        1

ctc ata gtt gtc ttt gtt ata tcc agt ttg ttg ttt gct act caa ttt     465
Leu Ile Val Val Phe Val Ile Ser Ser Leu Leu Phe Ala Thr Gln Phe
    5                  10                  15

tct aat gtaaaaatta ttattatttt cttcatatta tgatttatga attcagagaa     521
Ser Asn
20

ataaagtttt ttttttatg tgtgtatgta cag ggt gat gaa tta gag agt caa     575
                                    Gly Asp Glu Leu Glu Ser Gln
                                                    25

gct caa gca cct gca atc cat aag gtatatttaa attataaaat atcaaatact     629
Ala Gln Ala Pro Ala Ile His Lys
    30                  35

gaataataaa taataaatat attacaacaa gaatatcaat gttatttttc aaactacata     689

attttaaaat attttattga taacacaaat gtatattatt atcgtctcca ttgatttgca     749

ttctaaattt gttttgtta tccaaccaat ttcag aat gga gga gaa ggc tca     802
                                        Asn Gly Gly Glu Gly Ser
                                                        40

ctt aaa cca gaa g gtaaattgtt taaaagatat tattttatt tatatagtaa     855
Leu Lys Pro Glu
            45

atgattgatc aaatcacaac ttaaataatt taattgttga tttatatttt tctgaag     912

aa  tgt cca aag gca tgt gaa tat cga tgt tcg gcg aca tct cac agg     959
Glu Cys Pro Lys Ala Cys Glu Tyr Arg Cys Ser Ala Thr Ser His Arg
        50                  55                      60

aaa cca tgt ttg ttt ttt tgc aac aaa tgt tgt aac aaa tgt ttg tgt    1007
Lys Pro Cys Leu Phe Phe Cys Asn Lys Cys Cys Asn Lys Cys Leu Cys
        65                  70                      75

gta cca tcg gga aca tat gga cac aaa gaa gaa tgt cct tgc tac aat    1055
Val Pro Ser Gly Thr Tyr Gly His Lys Glu Glu Cys Pro Cys Tyr Asn
    80                  85                  90

aat tgg acg acc aaa gaa ggt gga cca aaa tgt cca tgaaaacaaa         1101
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Asn Trp Thr Thr Lys Glu Gly Gly Pro Lys Cys Pro
95   100   105

aaattgtaaa agcaaaataa aatctatcgt tgttatctct caataaaatc tatgtttgta   1161

atccttgttt ttcaatatag aatataatat ggagttttca taatttcttc tattacaaaa   1221

ttaaagttaa tgcacaaata aattgaaggg acttggacct tttcgtgtaa gttctttctt   1281

taaatcacga acaatttaga tttatatttt cactcttaca aacacaaaac atggatgctc   1341

tttaactctc atccaaacaa aatgcatttc tctctttctt tttctaaaca tttcacaaca   1401

atatcccata ttatatctaa gatatatgat cttttaaat tgaatttatt taggccatgt   1461

tttaaaatcg tgtttggtta gattgaccca tgaaatgttg acatatttta acattcctaa   1521

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            20   25   30

Ala Ile His Lys Asn Gly Gly Glu Gly Ser Leu Lys Pro Glu Glu Cys
            35   40   45

Pro Lys Ala Cys Glu Tyr Arg Cys Ser Ala Thr Ser His Arg Lys Pro
        50   55   60

Cys Leu Phe Phe Cys Asn Lys Cys Cys Asn Lys Cys Leu Cys Val Pro
65   70   75   80

Ser Gly Thr Tyr Gly His Lys Glu Glu Cys Pro Cys Tyr Asn Asn Trp
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Thr Thr Lys Glu Gly Gly Pro Lys Cys Pro
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tcatcaggat ttcaaaaata tctcaaaatt gttgtaagtt catgtaattc gaaatgaatg     180

tgcactataa gaaataaatt tacaatttaa aaaatgcttc aatactggtt acaaaaaaaa     240

ctttcaatac tagtattata ctacttactt agtcaaaaaa gtttatgaat atggtttttt     300

ctgtatgtta atatttttaa ctgaaaatag taccgacata acaagtaaag atatctttat     360

ttaaagtaac aaacattaat ttcacttcaa attctcacta ttaaggattc ctctctttgt     420

agccacattt caccatcact actttgtttt cgcatatctt taaattttgt atacgtagca     480

aactctttcg agaaaacaag atg aag ctc gtg gtt gta caa ttc ttc ata atc     533
                        Met Lys Leu Val Val Val Gln Phe Phe Ile Ile
                        1               5                   10

tct ctt ctc ctc aca tct tca ttt tct gta ctt tca agt gct gat tcg t    582
Ser Leu Leu Leu Thr Ser Ser Phe Ser Val Leu Ser Ser Ala Asp Ser
            15              20                  25

gtaagtgttt acttaatcta gttaataatt gtaggtcatg catgtatcat tttgaaacaa     642

gttttctgaa attctaagat tttacatata tatgtgataa atgaattagc ag ca  tgc     699
                                                              Ser Cys


ggt gga aag tgc aat gtg aga tgc tca aag gca gga caa cat gaa gaa        747
Gly Gly Lys Cys Asn Val Arg Cys Ser Lys Ala Gly Gln His Glu Glu
30                  35                  40                  45

tgc ctc aag tac tgc aat ata tgt tgc cag aag tgt aat tgt gtt cct        795
Cys Leu Lys Tyr Cys Asn Ile Cys Cys Gln Lys Cys Asn Cys Val Pro
                    50                  55                  60

tcg gga act ttt gga cac aaa gat gaa tgt cct tgc tac cgt gat atg        843
Ser Gly Thr Phe Gly His Lys Asp Glu Cys Pro Cys Tyr Arg Asp Met
                65                  70                  75

aaa aac tcc aaa ggt gga tcc aag tgt cct tgaacgttct ttgaagatcc          893
Lys Asn Ser Lys Gly Gly Ser Lys Cys Pro
                80                  85

tcatcacata catataactt ctacgtacta tatgtgtgga aatattaatc acattctatg     953

tttgaaatat ataaaataaa atcaatgccc ccaatgttgg aaatcttcaa tgtgatatct    1013

taatatatat cacgaataaa aaagtttaaa tttctcaatc tcatttttaa tctttaatct    1073
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aatttcttaa cacatcaacg aatctttaat ctttaatcat gtagataatt atcagagcac   1133

ctaaacattg cgccgttttg tgattataca aagtaacatc gtgctgtttt tgacttttga   1193

aaaccacaga tccaaaaact gtttactttc ctctaagaga aagcaaagcc gagtgagtcc   1253

aagcgagttt tgagagattc gttgactcac taccggagaa cgacgctatg tcagagaccg   1313

ccgtgtcaat cgattcggac cgatctaagt cggaggaaga agacgaagaa gagtattctc   1373

cac                                                                  1376
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            20                  25                  30


Cys Asn Val Arg Cys Ser Lys Ala Gly Gln His Glu Glu Cys Leu Lys
        35                  40                  45


Tyr Cys Asn Ile Cys Cys Gln Lys Cys Asn Cys Val Pro Ser Gly Thr
    50                  55                  60


Phe Gly His Lys Asp Glu Cys Pro Cys Tyr Arg Asp Met Lys Asn Ser
65                  70                  75                  80


Lys Gly Gly Ser Lys Cys Pro
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tttccaaaca gagcgtttag acactagtca actacacaat ataattttcc aattttcact     180

gagagaaatg tttttttttt tttttttccaa ggcaagattt tagtcttttg gttctctata     240

cgtgggtaat tagtgattag taatttacac tgttgagtct ttgacattgt ctaagagaca     300

aaaacgacaa gtgtggtacg taattagaaa ttaaaatgac ctacttcccc agaatcacgg     360

catgaacatt ggcaatacca aatttcttga ataccattga aggaaatcca cactaatcat     420

tttctctata aatatcttta atccgtttta ttgtttctta agaatcattc attggcaatc     480
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aagatttttt aaccaaaaaa atg gcg aat tgt atc aga aga aat gct ctt ttc     533
                       Met Ala Asn Cys Ile Arg Arg Asn Ala Leu Phe
                        1               5                  10
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ttc ttg act ctt ctc ttt tta ttg tca gtc tcc aac ctc gtt cag         578
Phe Leu Thr Leu Leu Phe Leu Leu Ser Val Ser Asn Leu Val Gln
            15              20              25
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gtaaaccact caaaacagat tcagtttatt aaagtctgat attgaagttt tatatattac     638

aggctgctcg tggaggtaaa aatgaccaaa ggctatacat tccttaaaaa tttaatggct     698
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attagttttc tgatattgaa gttttatata tatatgacag gct gct cgt ggt ggt     753
                                               Ala Ala Arg Gly Gly
                                                           30
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ggc aaa ctc aaa ccc caa c gtacggactc aaaacttttg ttgtttcata           802
Gly Lys Leu Lys Pro Gln
            35
```

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tgatcatatt aatttattaa tcactaatta ttgataatgt tgataaataa actttaaagt     862

aacaataatg gtgtttattt tgtgaaatgt cagttttcta gtatactgta tgctgtgaat     922

tataagcatg aacataaaga tctcaatgat ttgttttttg tttgtttgtt gtgatatgct     982
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tttttgatgg aaacttcaat tgtag ag tgc aac tca aag tgt agc ttc cgt      1033
                            Gln Cys Asn Ser Lys Cys Ser Phe Arg
                                        40              45
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```
tgt tca gca aca tca cac aag aag cca tgc atg ttc ttt tgc ctc aag     1081
Cys Ser Ala Thr Ser His Lys Lys Pro Cys Met Phe Phe Cys Leu Lys
            50              55              60
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tgt tgc aaa aaa tgt ctt tgt gtt cct cct ggc act ttc ggc aac aaa     1129
Cys Cys Lys Lys Cys Leu Cys Val Pro Pro Gly Thr Phe Gly Asn Lys
        65              70              75
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caa act tgt cca tgt tac aac aac tgg aag act aaa gaa ggc cgt cca     1177
Gln Thr Cys Pro Cys Tyr Asn Asn Trp Lys Thr Lys Glu Gly Arg Pro
        80              85              90
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aaa tgt cct taaaacttct ttttagatat atttgataat attcatctag            1226
Lys Cys Pro
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ttttggatta tcaaacactt actactctgt tttaatctgt ttctacaagt tggcgatttg   1286

tctctacact tttttgtgt cttttgctct taactgttgt gtttgttata cgtgtaagcc   1346

cgcccaatgt gtcatggccg aacttattat ggttacatat ttatgaaatg ggcttcatta   1406

tcaattgatt tgagcctaca aaaatgtagc cataaagccc attaagttgt aattgttaat   1466

atttcagtca taaatatgat tttctatatc tatgatttat ctctagtgtt gatgatgttt   1526

gtatgtggaa gtcatgttct atttgcttcc acggtttaaa aaccatcaac ttgctaaggt   1586

caaattctaa tattactgtg aaaaacatta tttacgtgcg taattatatg aatttatgaa   1646

taggttttaa ttccattttt tcctaatagt gttttatgtc aaa   1689

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            20   25   30

Lys Leu Lys Pro Gln Gln Cys Asn Ser Lys Cys Ser Phe Arg Cys Ser
        35   40   45

Ala Thr Ser His Lys Lys Pro Cys Met Phe Phe Cys Leu Lys Cys Cys
    50   55   60

Lys Lys Cys Leu Cys Val Pro Pro Gly Thr Phe Gly Asn Lys Gln Thr
65   70   75   80

Cys Pro Cys Tyr Asn Asn Trp Lys Thr Lys Glu Gly Arg Pro Lys Cys
                85   90   95

Pro

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ttttcattaa aatgaattgt ggaggacata ccactttttaa cgaggtcatt tccactgggt    180

gacatgtgga ctctactttg ggtggcatgt tcatatcttt ccacatcacc atgtaaacgt     240

gaaaacaccc accacactca cttacatctc aaacacatgt cttcattatc gtacgtagct     300

ccaaaaaaaa aaatgaaaac taggtttagt gattctattt cgcaatgtat aatatacaac     360

ttgtaaaaat aaaatatttg aataagcatt ataaataaac ccaaagaggt gttagattta     420

tatacttaat tgtagctact aaatagagaa tcagagagaa tagtttttata tcttgcacga   480

aactgcatgc tttttgagac atg gca atc ttc cga agt aca cta gtt tta ctg     533
                         Met Ala Ile Phe Arg Ser Thr Leu Val Leu Leu
                          1               5                  10

ctg atc ctc ttc tgc ctc acc act ttt gag gttcataact tttgtctttta         583
Leu Ile Leu Phe Cys Leu Thr Thr Phe Glu
            15                  20

cttctccatg aatcatttgc ttcgtcttat ccttaattca tatgtgtttg atcaatgata      643

ataattcatc attctcttca g ctt cat gtt cat gct gct gaa gat tca caa        694
                        Leu His Val His Ala Ala Glu Asp Ser Gln
                                     25                  30

gtc ggt gaa ggc gta gtg aaa att g gtatgtaacg ctaacatata                739
Val Gly Glu Gly Val Val Lys Ile
               35

tgtaaagtgt tatatctctg tttatatatg atttttaaac ggttaaaaac tagtcatatg      799

tgtataaata tatcatgtga ag at  tgc ggt ggg aga tgc aaa ggt aga tgc       850
                           Asp Cys Gly Gly Arg Cys Lys Gly Arg Cys
                                              45

agc aaa tcg tcg agg cca aat ctg tgt ttg aga gca tgc aac agc tgt        898
Ser Lys Ser Ser Arg Pro Asn Leu Cys Leu Arg Ala Cys Asn Ser Cys
50                  55                  60                      65

tgt tac cgc tgc aac tgt gtg cca cca ggc acc gcc ggg aac cac cac        946
Cys Tyr Arg Cys Asn Cys Val Pro Pro Gly Thr Ala Gly Asn His His
                70                  75                      80

ctt tgt cct tgc tac gcc tcc att acc act cgt ggt ggc cgt ctc aag        994
Leu Cys Pro Cys Tyr Ala Ser Ile Thr Thr Arg Gly Gly Arg Leu Lys
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          85   90   95
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Cys Pro

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atggttcatg ttgaactagt ataagttgta tgaactgtgc ttcttttgaa caaccacttt   1170

tgctgtaagt ttagcaaccc tatttaataa attagagatt acaaaaaaaa aaatgaaaaa   1230

tgtttaaaaa acgtggattt ttaaatttgg gattaaaaat taattttcat tttggttgat   1290

ttgtcaataa attagctaag ttttgtatac taggccgttt aagatatgct gttaaatttt   1350

tgataataga gttgccttag aagttcataa ctgtaaatat ctaacttcac ttcaatctca   1410

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            20   25   30

Gly Glu Gly Val Val Lys Ile Asp Cys Gly Gly Arg Cys Lys Gly Arg
        35   40   45

Cys Ser Lys Ser Ser Arg Pro Asn Leu Cys Leu Arg Ala Cys Asn Ser
    50   55   60

Cys Cys Tyr Arg Cys Asn Cys Val Pro Pro Gly Thr Ala Gly Asn His
65   70   75   80

His Leu Cys Pro Cys Tyr Ala Ser Ile Thr Thr Arg Gly Gly Arg Leu
                85   90   95

Lys Cys Pro

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acttttaatt ggggttaaca tattatttaa cacttaacat ttaactattg atctctcatt     180

tttttttat taaccaaaat aaattcattt tagaaccaaa cgtttcaaaa actcgtaatg      240

ttttctcatt aaatcttatc tatagctcac acaaagaaaa actacggaca tgcatgcacc     300

caattatata catggattat tattttagt gttataatat gatacaaaat aaaaaacatt      360

tggatagccg ataggcgata gccactataa atataccaaa gaggttggat tatacatata     420

gccgtaatac caaagagagt atcagataga aatagttcta atattttgta caactcacag     480

aaattgcatg agtttcgaac atg gca gtc ttc cga agt aca ctg gtt ctg tta     533
                         Met Ala Val Phe Arg Ser Thr Leu Val Leu Leu
                          1               5                  10

cta atc atc gtc tgt ctc acc act tat gag gtttataata tttttggtct         583
Leu Ile Ile Val Cys Leu Thr Thr Tyr Glu
            15                  20

ttatagttcc ccaagaacac ctagcaatat tatactcaat tcatgtttat atgataatga     643

ctgatcattc tcttcag ctt cac gtc cac gct gct gat ggt gca aag gtc        693
                   Leu His Val His Ala Ala Asp Gly Ala Lys Val
                            25                  30

ggt gaa ggc gta gtg aaa atc g gtatgtaacc ctaacttata tataacacgt        745
Gly Glu Gly Val Val Lys Ile
          35

tggtatataa cttaatattt ctgatgggtg cactctcttc ccaacttata tatatctttg     805

ttatggagaa tgtctcaagc ttttaatgag atgttatatc tcggagaagg aaactatgaa     865

ctaaaagctt tggattcctt tgcaacaaat ataacttttt gatgggttta aacggattaa     925

attagttaca tgtgtttgat gaatgtatgt atgattgtag at  tgt ggt ggg aga       979
                                                 Asp Cys Gly Gly Arg

tgc aaa gat aga tgc agc aaa tct tcg aga acg aag cta tgc ttg aga      1027
Cys Lys Asp Arg Cys Ser Lys Ser Ser Arg Thr Lys Leu Cys Leu Arg
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45                    50                    55                    60
gcg tgc aac agc tgt tgt tcc cgc tgc aac tgt gtg cca cct ggt act    1075
Ala Cys Asn Ser Cys Cys Ser Arg Cys Asn Cys Val Pro Pro Gly Thr
                65                    70                    75

tct gga aac acc cac ctt tgt cct tgc tac gcc tcc att acc act cac    1123
Ser Gly Asn Thr His Leu Cys Pro Cys Tyr Ala Ser Ile Thr Thr His
                80                    85                    90

ggt ggc cgc ctc aag tgc cct taaaatttct tctgtgtctg tttctgtttc      1174
Gly Gly Arg Leu Lys Cys Pro
                95

tacttctatt tcgaatatat gtacatgtgt gtgtacgtgt gtatgtatac aagtactgct    1234

atgttttgga ggacaaaagt atatgtatga gaagctataa actaattaga agttgatggt    1294

tatgcgtatt atcaaaccgt gttacttctg aacaaccaat ttcggtttgt tccaagtttg    1354

gcaaccctaa aataaaaatt caaaatgatt ggagactact cgttaataga cattgaaaac    1414

gatgaaatct cgttacgttt ttatattttt tgaactgtaa tattattatg cagaagcggt    1474

tttgtaatgg gccgacaaaa aaaaagtggt tttgtaatgg atatgattcg gatctattct    1534

ggaaatggtc tcaaaaagta gagttgagat ctcaatacga aaatgaaccc tttcgtttga    1594

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Leu Thr Thr Tyr Glu Leu His Val His Ala Ala Asp Gly Ala Lys Val
                20                  25                  30

Gly Glu Gly Val Val Lys Ile Asp Cys Gly Gly Arg Cys Lys Asp Arg
            35                  40                  45

Cys Ser Lys Ser Ser Arg Thr Lys Leu Cys Leu Arg Ala Cys Asn Ser
    50                  55                  60

Cys Cys Ser Arg Cys Asn Cys Val Pro Pro Gly Thr Ser Gly Asn Thr
65                  70                  75                  80

His Leu Cys Pro Cys Tyr Ala Ser Ile Thr Thr His Gly Gly Arg Leu
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Lys Cys Pro
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ggtgttataa gcaaaacttg atttatcaaa aacaggttca tagtatttta tatttagtac      180

tataagcttt ccttaaacca tgtgcaaaac catctaccgc agtctaatta ccaatagcaa      240

gtaataaaat gggactaaca ttggaggcat acgtggaata atataattgg aggaatacag      300

taataatgat atgtgttgcc acagggaata attgatacga gcaaatgtgt gtatatatag      360

cttatatgca acatcattgg gtcctcaacc aaaaactcct ctctcagtac acttcttttc      420

atacctcaag agactaaaac tagtttgagg agatttagag gagtgtttgg ttctttggat      480

aacaatatcc caaactgaaa atg gct aag tca tat gga gct atc ttc ctc ttg      533
                        Met Ala Lys Ser Tyr Gly Ala Ile Phe Leu Leu
                         1               5                  10

acc ctc att gtc ctc ttc atg ctt caa acc atg gtaacacctc tattattttt      586
Thr Leu Ile Val Leu Phe Met Leu Gln Thr Met
            15                  20

ttcttctttc aatgtttgaa aatattgaag ataatatatt tgattgtttt ccttattgac      646

gaacgatatg agacaaatgt gggttctatt attgtacttt tagttggaat atatttaatt      706

tagcctttttt aatgaaatta attttacttg tttttcctct ctcttttttt cgtttttttag   766

gtt atg gcc tca agt gga tct aat gtg aag tgg agc cag gtcagtttta         815
Val Met Ala Ser Ser Gly Ser Asn Val Lys Trp Ser Gln
        25                  30                  35
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acttaacgaa aagtgattaa ttagttacct tttttggtta attttcag aaa cgt tat      932
                                                       Lys Arg Tyr


gga cca gga agc ctg aaa cgt acc c gtaagttttt tcttcacagc              977
Gly Pro Gly Ser Leu Lys Arg Thr
 40                45

tattcttaaa caattttttt ttaatctcat aatcgacgaa aaataaacaa ttcaagaaat     1037

cttttattgt gttataataa aaaaaaataa gcatttcagt tgcagaaaat aagttgaaag     1097

tgaagtgtta agtggactgt ttggtcagat ccgtagactc aaaatatatt agatattgac     1157

gaaattgccc cttaatatgg tcatacagtc aaagcaaccc actatcttga gacccacaaa     1217

acagtaaaaa aaaagctaa tgaatttcca ctagattctg ttgtttttat tagtaataaa      1277

aaatttttga gtgttaacat tttgatattg tttgtatttg aaacaaccag aa  tgc        1332
                                                            Gln Cys


cca tcg gaa tgt gat agg agg tgt aaa aag aca cag tac cac aag gct     1380
Pro Ser Glu Cys Asp Arg Arg Cys Lys Lys Thr Gln Tyr His Lys Ala
 50                55                60

tgc att acg ttc tgc aac aaa tgc tgc agg aag tgt ctc tgt gtg cct     1428
Cys Ile Thr Phe Cys Asn Lys Cys Cys Arg Lys Cys Leu Cys Val Pro
 65                70                75                80

ccg ggt tac tat ggg aac aaa caa gtt tgc tcc tgc tac aac aac tgg     1476
Pro Gly Tyr Tyr Gly Asn Lys Gln Val Cys Ser Cys Tyr Asn Asn Trp
                   85                90                95

aaa act caa gag ggt gga cca aaa tgc cct tgaaaaaatc tcccttcgtt       1526
Lys Thr Gln Glu Gly Gly Pro Lys Cys Pro
                  100                105

cccttttat aataaaaatt ttcaactata actaaatttc ctttgatcaa tgttttatct     1586

actttattcc taatgttgta atgttatgtc actccttttc ggattttgtt ctaaatccta     1646

aaaaaaatga gagtggccct atgaatgata ttttcatga atacttgtgt ttctaaagat     1706

attttcccat tcatccacca aaaaaaaaga tattttccat ttcgaaaata gtaatactat     1766

aaagggtaag gcaaaccaaa taatacaatt taaaaaattc ctgcgaaaga agtatgcata     1826

tgtagaaaag agtgacattg ggtctctcgg cccagtacta aaaagcccat tattgatttt     1886

tccaagcttt ttacaaaatc acgtgttcta acgcgattgc tttttgccgc aatcttcttt     1946

tatacaagac ttgggctttg ggcagttgga aataaataac gacaacgata ttttacaatc     2006

ggt                                                                   2009
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            20                  25                  30


Trp Ser Gln Lys Arg Tyr Gly Pro Gly Ser Leu Lys Arg Thr Gln Cys
            35                  40                  45


Pro Ser Glu Cys Asp Arg Arg Cys Lys Lys Thr Gln Tyr His Lys Ala
    50                  55                  60


Cys Ile Thr Phe Cys Asn Lys Cys Cys Arg Lys Cys Leu Cys Val Pro
65                  70                  75                  80


Pro Gly Tyr Tyr Gly Asn Lys Gln Val Cys Ser Cys Tyr Asn Asn Trp
                85                  90                  95


Lys Thr Gln Glu Gly Gly Pro Lys Cys Pro
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tttgtcatcc actagtctct ggggtactc aaaacatatc accaaaaagt ccatagagtt    180

atttgttctt atttactgat aaagtattcc aagttgatgt acgaataaag tggcaatttc    240

atgtattatc aatataatcc atttttggga atctgatatt ttgtttatcc tcgagctctg    300

agagatatat tttggtgcag tgaaggttca aagctggcat gcatgatgca tataataact    360

gctctggacc taatacttac tacgcattta aattaatatt tatggataat atggttaata    420

aataaggaac ttctatttat atcacaaaag gtcactggtc ttcttcgtgt gacttcacca    480

ctttctcatc tcccacaaaa atg gct ctc tca ctt ctt tca gtc ttt atc ttt    533
                         Met Ala Leu Ser Leu Leu Ser Val Phe Ile Phe
                          1               5                  10

ttc cat gtc ttt acc aat gtaagttatt cttactttc ataacaaaag              581
Phe His Val Phe Thr Asn
            15

gtgttattat gttaaagact acataatagt atacaattat gtgcattacg ttttcgcgta    641

ttgtaactaa ctatgtattt tgattaatca ccgagcag gtt gtt ttt gct gct tca    697
                                           Val Val Phe Ala Ala Ser
                                                        20

aat gag gaa tcc aac gcc tta gtacgttttc taatttccag tttaattatt         748
Asn Glu Glu Ser Asn Ala Leu
 25              30

tctatgcgtc tttaactata tactcaggca tttttattga ttattgtgta tgaagttaaa    808

ttttggtata tgtttgtatt aaatttatag gtt tct tta cca acg cca aca ctt     862
                                   Val Ser Leu Pro Thr Pro Thr Leu
                                                    35

cca tcg cca tct ccg gct acc aaa ccg ccg tcg cca gct ctc aaa ccg     910
Pro Ser Pro Ser Pro Ala Thr Lys Pro Pro Ser Pro Ala Leu Lys Pro
     40                  45                  50

ccg acg ccg tcg tac aag cca ccc acg ctg cca act act cct att aaa     958
Pro Thr Pro Ser Tyr Lys Pro Pro Thr Leu Pro Thr Thr Pro Ile Lys
55                  60                  65                  70

cca ccc acc aca aaa cct ccg gtc aaa cct cca act att ccg gtt aca    1006
Pro Pro Thr Thr Lys Pro Pro Val Lys Pro Pro Thr Ile Pro Val Thr
                75                  80                  85

cca gta aaa cct ccg gtt tca act cct ccg atc aaa cta ccg ccg gta    1054
Pro Val Lys Pro Pro Val Ser Thr Pro Pro Ile Lys Leu Pro Pro Val
            90                  95                  100

caa cca cct acg tac aaa ccc cca acg cca aca gtt aaa cca ccg tcc    1102
Gln Pro Pro Thr Tyr Lys Pro Pro Thr Pro Thr Val Lys Pro Pro Ser
            105                 110                 115

gtc caa cca cct acg tac aaa ccc cca act cca acg gtt aaa cca ccc    1150
Val Gln Pro Pro Thr Tyr Lys Pro Pro Thr Pro Thr Val Lys Pro Pro
     120                 125                 130

act aca tca ccg gtt aaa cca ccc act acg cca cca gtt caa tca ccg    1198
Thr Thr Ser Pro Val Lys Pro Pro Thr Thr Pro Pro Val Gln Ser Pro
135                 140                 145                 150
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ccg gtc caa cca cct acg tac aaa ccc cca acg tca ccg gtt aaa cca     1246
Pro Val Gln Pro Pro Thr Tyr Lys Pro Pro Thr Ser Pro Val Lys Pro
            155             160                 165

ccc acc aca act cca ccg gtt aaa ccc ccc acc acg acg cca ccg gtc     1294
Pro Thr Thr Thr Pro Pro Val Lys Pro Pro Thr Thr Thr Pro Pro Val
            170             175                 180

caa cca cct acg tac aat ccc cca act aca ccg gtt aaa cca cct aca     1342
Gln Pro Pro Thr Tyr Asn Pro Pro Thr Thr Pro Val Lys Pro Pro Thr
        185             190                 195

gcg ccg cct gtc aaa cct cca aca cca cct ccc gta aga act cgg ata g   1391
Ala Pro Pro Val Lys Pro Pro Thr Pro Pro Pro Val Arg Thr Arg Ile
    200             205                 210

gtaataataa ttttctttca aaagtgtgat gattatcggt cgttgattag atcggatgta   1451

taattggact aaattttgga cggtttag at  tgc gtg cct tta tgt ggg acg     1502
                                Asp Cys Val Pro Leu Cys Gly Thr
                                                    220

agg tgt ggg caa cac tcg agg aag aac gta tgt atg aga gcg tgc gtc    1550
Arg Cys Gly Gln His Ser Arg Lys Asn Val Cys Met Arg Ala Cys Val
        225             230                 235

acg tgc tgc tac cgc tgc aag tgt gtt ccc cca ggc acc tac ggt aat    1598
Thr Cys Cys Tyr Arg Cys Lys Cys Val Pro Pro Gly Thr Tyr Gly Asn
        240             245                 250

aag gag aag tgt gga tct tgt tac gcc aac atg aag aca cgt ggt gga    1646
Lys Glu Lys Cys Gly Ser Cys Tyr Ala Asn Met Lys Thr Arg Gly Gly
255             260                 265                 270

aaa tcc aaa tgt cct tgaaccttta tatgacgatg gttgttaaac gaaataattt    1701
Lys Ser Lys Cys Pro
                275

aaatcaatgg agtttttata agtttgtaat gcgtttgttt ttgttatagt aatattgagt   1761

tggatctttg tttacgggac gtagaatact aaataatgaa aaaaaccttc tcgatgaatt   1821

aagggtttta tgaatttgtt ttgtattgaa taatataggg atggataaag ttttattatt   1881

ctaacaggtt actttattag gcatttcttc ggctcatgta actcttgtat cgctgaaact   1941

atgtaataga tagaagaacc taaaaaaaga aagaaaacaa gaaatgcaca tagcgaagct   2001

caaaagatga gtgttctgct agcggtaatg ttgttattca gttgggtcaa atgctctaat   2061

tgcaaatctt atttgggcct tatatagact cttatgtgca tatggtccag cctatttggg   2121

ccgatgtgtt tgaagatcat ttgggaaagt cttgcgcaag gag                    2164
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<213> Arabidopsis thaliana

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Page 29

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Met Ala Leu Ser Leu Leu Ser Val Phe Ile Phe Phe His Val Phe Thr
1               5               10              15

Asn Val Val Phe Ala Ala Ser Asn Glu Glu Ser Asn Ala Leu Val Ser
            20              25              30

Leu Pro Thr Pro Thr Leu Pro Ser Pro Ser Pro Ala Thr Lys Pro Pro
        35              40              45

Ser Pro Ala Leu Lys Pro Pro Thr Pro Ser Tyr Lys Pro Pro Thr Leu
    50              55              60

Pro Thr Thr Pro Ile Lys Pro Pro Thr Thr Lys Pro Pro Val Lys Pro
65              70              75              80

Pro Thr Ile Pro Val Thr Pro Val Lys Pro Pro Val Ser Thr Pro Pro
            85              90              95

Ile Lys Leu Pro Pro Val Gln Pro Pro Thr Tyr Lys Pro Pro Thr Pro
            100             105             110

Thr Val Lys Pro Pro Ser Val Gln Pro Pro Thr Tyr Lys Pro Pro Thr
        115             120             125

Pro Thr Val Lys Pro Pro Thr Thr Ser Pro Val Lys Pro Pro Thr Thr
    130             135             140

Pro Pro Val Gln Ser Pro Pro Val Gln Pro Pro Thr Tyr Lys Pro Pro
145             150             155             160

Thr Ser Pro Val Lys Pro Pro Thr Thr Thr Pro Pro Val Lys Pro Pro
            165             170             175

Thr Thr Thr Pro Pro Val Gln Pro Pro Thr Tyr Asn Pro Pro Thr Thr
            180             185             190

Pro Val Lys Pro Pro Thr Ala Pro Pro Val Lys Pro Pro Thr Pro Pro
            195             200             205

Pro Val Arg Thr Arg Ile Asp Cys Val Pro Leu Cys Gly Thr Arg Cys
    210             215             220

Gly Gln His Ser Arg Lys Asn Val Cys Met Arg Ala Cys Val Thr Cys
225             230             235             240

Cys Tyr Arg Cys Lys Cys Val Pro Pro Gly Thr Tyr Gly Asn Lys Glu
            245             250             255
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Lys Cys Gly Ser Cys Tyr Ala Asn Met Lys Thr Arg Gly Gly Lys Ser
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Lys Cys Pro
        275
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agattctaca tgacatttta aatcactaaa actcttttga aatcataaac caataacaac   180

cccttagttt tttactattt gaattctgac gtactttttt attagttgaa tttctataaa   240

tgagaaaaca ttaattattt cttaatcttt gaacttaagc cccacaaaaa tcttataaat   300

tgggacagat ggactagata acaagcgttt cacctactcc aaaatttccc tataagtaac   360

tcttttgta acctcctttt cttcccaaac catcactcct tttgcattgt gtgaaacctt   420

cgagttttct cttcatcttc tcaaagtaac aaactttctc caaacagatt attattaaaa   480

caatctcatc aagaactacg atg aaa ttc ccg gct gta aaa gtt ctt att atc   533
                        Met Lys Phe Pro Ala Val Lys Val Leu Ile Ile
                         1           5                   10

tct ctt ctc atc aca tct tct ttg ttc ata ctc tca acc gcg gat tcg t   582
Ser Leu Leu Ile Thr Ser Ser Leu Phe Ile Leu Ser Thr Ala Asp Ser
            15                  20                  25

gtaagtatac acaatgcatt ttcttatttt agatactttt ctcattagaa atttagcttt   642

cttaataaaa ttgtattgtg atgatggatt aattag ca  cca tgc gga gga aaa     695
                                       Ser Pro Cys Gly Gly Lys
                                                    30

tgc aac gtg aga tgt tca aag gca gga aga caa gat agg tgt ctc aag     743
Cys Asn Val Arg Cys Ser Lys Ala Gly Arg Gln Asp Arg Cys Leu Lys
    35                  40                  45

tat tgt aat ata tgt tgc gag aag tgt aac tat tgt gtt cct tca ggc     791
Tyr Cys Asn Ile Cys Cys Glu Lys Cys Asn Tyr Cys Val Pro Ser Gly
50                  55                  60                  65
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act tat gga aac aaa gat gaa tgc cct tgt tac cgc gat atg aag aac      839
Thr Tyr Gly Asn Lys Asp Glu Cys Pro Cys Tyr Arg Asp Met Lys Asn
                70                  75                  80

tcc aaa ggc acg tcc aaa tgt cct tgatcatgtt cttaagatta tccttataga    893
Ser Lys Gly Thr Ser Lys Cys Pro
            85

cacaatatct tgaaatgtta agattgtgct tgatgcctaa aataatgagc ttgagatact    953

tctatgaatg aatatgtgaa agattttgac aataaaatga tttgatgtat taaaatattc   1013

ttagtgaagt tatatatgta taaatgaagt atgaaatata cattgtatgt tgctttacat   1073

gagaaagata aatctacaac aatccaatgt atgaaaattt tactaagtta actgatcaga   1133

aacgttaatt atggtttaga atcttgtgga gagatgatta cttttgtaag agaaattgat   1193

tgtttgttgt caatgaggat aaagtaagaa gccatttctc aacacatgga cttgatagca   1253

aactaaacaa ggctcaagca ttgaaattga aacgtctcga tagataagat tggctcaaga   1313

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            20                  25                  30


Lys Cys Asn Val Arg Cys Ser Lys Ala Gly Arg Gln Asp Arg Cys Leu
            35                  40                  45


Lys Tyr Cys Asn Ile Cys Cys Glu Lys Cys Asn Tyr Cys Val Pro Ser
    50                  55                  60


Gly Thr Tyr Gly Asn Lys Asp Glu Cys Pro Cys Tyr Arg Asp Met Lys
65                  70                  75                  80


Asn Ser Lys Gly Thr Ser Lys Cys Pro
                85
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            Met Ala Thr Lys Leu Ser Ile Ile Val Phe Ser Ile
            1               5                   10

gtt gtg tta cat ctt ctt ctg tct gcc cat atg cat gtaagtgttt           95
Val Val Leu His Leu Leu Leu Ser Ala His Met His
        15                  20

caacactcta ttcctctatg ttcacattta tcaactttat cttatacgtc cctgaataaa    155

acacagccta tatacttgga atctcctgct cgacaaccac aaccaccaca gtcgcaacca    215

caactgccgc atcacaataa ctctcaagtg agtttctcgg ttcatcacta ctcaaaaaaa    275

gagtttcatc gaatctacaa aaccttttta acatcctttg catcttcttg ttgattttgg    335

cagtacggta ctactcaagg cagtcttcaa ccccaaggta aacccactga ctagcctag     394

ttt tta att aat gtt tgt gct gaa tgc gaa act aaa tcc gct att cca       442
Phe Leu Ile Asn Val Cys Ala Glu Cys Glu Thr Lys Ser Ala Ile Pro
25                  30              35                      40

cct tta tta gag tgc ggg cca agg tgt gga gat aga tgc tcg aat aca       490
Pro Leu Leu Glu Cys Gly Pro Arg Cys Gly Asp Arg Cys Ser Asn Thr
                45                  50                  55

caa tac aag aag ccg tgt ttg ttc ttc tgc aac aaa tgt tgt aac aag       538
Gln Tyr Lys Lys Pro Cys Leu Phe Phe Cys Asn Lys Cys Cys Asn Lys
            60                  65                  70

tgc ttg tgt gtg ccc cca ggt act tat ggc aat aag caa gta tgt cct       586
Cys Leu Cys Val Pro Pro Gly Thr Tyr Gly Asn Lys Gln Val Cys Pro
        75                  80                  85

tgc tat aac aac tgg aag acc aag agc ggt gga cca aaa tgc cct           631
Cys Tyr Asn Asn Trp Lys Thr Lys Ser Gly Gly Pro Lys Cys Pro
    90                  95                  100

tagtttctcc tcttaattac tttagcataa actccatgta atttgttaat ctacctatca    691

taatttatat atgtattgga ctcttccata atcacatcag ttctctgtga ttatgacgt      750


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1               5                   10                  15
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                20   25   30

Cys Glu Thr Lys Ser Ala Ile Pro Pro Leu Leu Glu Cys Gly Pro Arg
            35   40   45

Cys Gly Asp Arg Cys Ser Asn Thr Gln Tyr Lys Lys Pro Cys Leu Phe
        50   55   60

Phe Cys Asn Lys Cys Cys Asn Lys Cys Leu Cys Val Pro Pro Gly Thr
65   70   75   80

Tyr Gly Asn Lys Gln Val Cys Pro Cys Tyr Asn Asn Trp Lys Thr Lys
                85   90   95

Ser Gly Gly Pro Lys Cys Pro
            100

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        Xaa at position 25 is either P or S

        Xaa at position 25 is either N or H

        Other Xaa may be any amino acid

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<223>  Xaa can be any naturally occurring amino acid

<400>  31
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Cys Xaa Cys Xaa Arg Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Cys Xaa
1   5   10   15

Xaa Xaa Cys Xaa Xaa Cys Cys Xaa Xaa Cys Xaa Cys Val Pro Xaa Gly
            20   25   30

Thr Xaa Gly Xaa Xaa Xaa Xaa Cys Xaa Cys Tyr Xaa Xaa Xaa Xaa Xaa
        35   40   45

Xaa Xaa Gly Xaa Xaa Lys Cys Pro
    50   55

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<213>   Arabidopsis thaliana


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<222>   (53)..(703)

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ttactctcaa attccttttc gatttccctc tcttaaacct ccgaaagctc ac atg gcg        58
                                                             Met Ala
                                                              1


tct cga aac tat cgg tgg gag ctc ttc gca gct tcg tta acc cta acc        106
Ser Arg Asn Tyr Arg Trp Glu Leu Phe Ala Ala Ser Leu Thr Leu Thr
         5                  10                  15

tta gct ttg att cac ctg gtc gaa gca aac tcc gaa gga gat gct ctc        154
Leu Ala Leu Ile His Leu Val Glu Ala Asn Ser Glu Gly Asp Ala Leu
     20                  25                  30

tac gct ctt cgc cgg agt ttg aca gat cca gac cat gtc ctc cag agc        202
Tyr Ala Leu Arg Arg Ser Leu Thr Asp Pro Asp His Val Leu Gln Ser
35                  40                  45                  50

tgg gat cca act ctt gtt aat cct tgt acc tgg ttc cat gtc acc tgt        250
Trp Asp Pro Thr Leu Val Asn Pro Cys Thr Trp Phe His Val Thr Cys
                 55                  60                  65

aac caa gac aac cgc gtc act cgt gtg gat ttg gga aat tca aac ctc        298
Asn Gln Asp Asn Arg Val Thr Arg Val Asp Leu Gly Asn Ser Asn Leu
             70                  75                  80

tct gga cat ctt gcg cct gag ctt ggg aag ctt gaa cat tta cag tat        346
Ser Gly His Leu Ala Pro Glu Leu Gly Lys Leu Glu His Leu Gln Tyr
             85                  90                  95

cta gag ctc tac aaa aac aac atc caa gga act ata cct tcc gaa ctt        394
Leu Glu Leu Tyr Lys Asn Asn Ile Gln Gly Thr Ile Pro Ser Glu Leu
     100                 105                 110

gga aat ctg aag aat ctc atc agc ttg gat ctg tac aac aac aat ctt        442
Gly Asn Leu Lys Asn Leu Ile Ser Leu Asp Leu Tyr Asn Asn Asn Leu
115                 120                 125                 130

aca ggg ata gtt ccc act tct ttg gga aaa ttg aag tct ctg gtc ttt        490
Thr Gly Ile Val Pro Thr Ser Leu Gly Lys Leu Lys Ser Leu Val Phe
                 135                 140                 145

tta cgg ctt aat gac aac cga ttg acg gtc caa tcc cta gag cac tca        538
Leu Arg Leu Asn Asp Asn Arg Leu Thr Val Gln Ser Leu Glu His Ser
             150                 155                 160

cgg caa tcc caa gcc ttt aaa gtt gtg acg tct caa gca atg att tgt        586
Arg Gln Ser Gln Ala Phe Lys Val Val Thr Ser Gln Ala Met Ile Cys
             165                 170                 175

gtg gac aat ccc aca aac gga ccc ttt gct cac att cct tta cag aac        634
Val Asp Asn Pro Thr Asn Gly Pro Phe Ala His Ile Pro Leu Gln Asn
     180                 185                 190
```

```
ttt gag aac aac ccg aga ttg gag gga ccg gaa tta ctc ggt ctt gca        682
Phe Glu Asn Asn Pro Arg Leu Glu Gly Pro Glu Leu Leu Gly Leu Ala
195                     200             205                 210

agc tac gac act aac tgc acc tgaacaactg gcaaaacctg aaaatgaaga            733
Ser Tyr Asp Thr Asn Cys Thr
                215

attggggggt gaccttgtaa gaacacttca ccactttatc aaatatcaca tctactatgt      793

aataagtata tatatgtagt ccaaaaaaaa aaaaaaaaa                              832
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<210>   33
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<213>   Arabidopsis thaliana

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Met Ala Ser Arg Asn Tyr Arg Trp Glu Leu Phe Ala Ala Ser Leu Thr
1               5               10                  15


Leu Thr Leu Ala Leu Ile His Leu Val Glu Ala Asn Ser Glu Gly Asp
        20              25              30


Ala Leu Tyr Ala Leu Arg Arg Ser Leu Thr Asp Pro Asp His Val Leu
        35              40              45


Gln Ser Trp Asp Pro Thr Leu Val Asn Pro Cys Thr Trp Phe His Val
    50              55              60


Thr Cys Asn Gln Asp Asn Arg Val Thr Arg Val Asp Leu Gly Asn Ser
65              70              75                  80


Asn Leu Ser Gly His Leu Ala Pro Glu Leu Gly Lys Leu Glu His Leu
                85              90              95


Gln Tyr Leu Glu Leu Tyr Lys Asn Asn Ile Gln Gly Thr Ile Pro Ser
            100             105             110


Glu Leu Gly Asn Leu Lys Asn Leu Ile Ser Leu Asp Leu Tyr Asn Asn
        115             120             125


Asn Leu Thr Gly Ile Val Pro Thr Ser Leu Gly Lys Leu Lys Ser Leu
    130             135             140


Val Phe Leu Arg Leu Asn Asp Asn Arg Leu Thr Val Gln Ser Leu Glu
145             150             155                 160


His Ser Arg Gln Ser Gln Ala Phe Lys Val Val Thr Ser Gln Ala Met
                165             170                 175
```

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```
Ile Cys Val Asp Asn Pro Thr Asn Gly Pro Phe Ala His Ile Pro Leu
        180                 185             190
```

```
Gln Asn Phe Glu Asn Asn Pro Arg Leu Glu Gly Pro Glu Leu Leu Gly
        195                 200             205
```

```
Leu Ala Ser Tyr Asp Thr Asn Cys Thr
    210                 215
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<210>  34
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<213>  Arabidopsis thaliana
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<222>  (53)..(709)
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<400>  34
aaaattactc aaattcctat tagattactc tcttcgacct ccgatagctc ac atg gcg      58
                                                           Met Ala
                                                            1
```

```
tct cga aac tat cgg tgg gag ctc ttc gca gct tcg tta atc cta acc      106
Ser Arg Asn Tyr Arg Trp Glu Leu Phe Ala Ala Ser Leu Ile Leu Thr
         5                 10                  15
```

```
tta gct ttg att cac ctg gtc gaa gca aac tcc gaa gga gat gct ctt      154
Leu Ala Leu Ile His Leu Val Glu Ala Asn Ser Glu Gly Asp Ala Leu
     20                 25                  30
```

```
tac gct ctt cgc cgg agt tta aca gat ccg gac cat gtc ctc cag agc      202
Tyr Ala Leu Arg Arg Ser Leu Thr Asp Pro Asp His Val Leu Gln Ser
35                  40                  45                  50
```

```
tgg gat cca act ctt gtt aat cct tgt acc tgg ttc cat gtc acc tgt      250
Trp Asp Pro Thr Leu Val Asn Pro Cys Thr Trp Phe His Val Thr Cys
                 55                  60                  65
```

```
aac caa gac aac cgc gtc act cgt gtg gat ttg ggg aat tca aac ctc      298
Asn Gln Asp Asn Arg Val Thr Arg Val Asp Leu Gly Asn Ser Asn Leu
             70                  75                  80
```

```
tct gga cat ctt gcg cct gag ctt ggg aag ctt gaa cat tta cag tat      346
Ser Gly His Leu Ala Pro Glu Leu Gly Lys Leu Glu His Leu Gln Tyr
         85                  90                  95
```

```
cta gag ctc tac aaa aac aac atc caa gga act ata cct tcc gaa ctt      394
Leu Glu Leu Tyr Lys Asn Asn Ile Gln Gly Thr Ile Pro Ser Glu Leu
    100                 105                 110
```

```
gga aat ctg aag aat ctc atc agc ttg gat ctg tac aac aac aat ctt      442
Gly Asn Leu Lys Asn Leu Ile Ser Leu Asp Leu Tyr Asn Asn Asn Leu
115                 120                 125                 130
```

```
aca ggg ata gtt ccc act tct ttg gga aaa ttg aag tct ctg gtc ttt      490
Thr Gly Ile Val Pro Thr Ser Leu Gly Lys Leu Lys Ser Leu Val Phe
                 135                 140                 145
```

```
tta cgg ctt aat gac aac cga ttg acg ggg caa tcc cta gag cac tca        538
Leu Arg Leu Asn Asp Asn Arg Leu Thr Gly Gln Ser Leu Glu His Ser
            150                 155                 160

ctg cca atc cca agc ctt aaa agt tgt gga tgt cta agc aat gat ttg        586
Leu Pro Ile Pro Ser Leu Lys Ser Cys Gly Cys Leu Ser Asn Asp Leu
        165                 170  ·              175

tgt gga aca atc cca aca aac gga cct ttt gct cac att cct tta cag        634
Cys Gly Thr Ile Pro Thr Asn Gly Pro Phe Ala His Ile Pro Leu Gln
    180                 185                 190

aac ttt gag aac aac ccg agg ttg gag gga ccg gaa tta ctc ggt ctt        682
Asn Phe Glu Asn Asn Pro Arg Leu Glu Gly Pro Glu Leu Leu Gly Leu
195                 200                 205                 210

gca agc tac gac act aac tgc acc tga agaaattggc aaaacctgaa             729
Ala Ser Tyr Asp Thr Asn Cys Thr
                215

aatgaagaat tggggggggac cttgtaagaa cacttcacca ctttatcaaa tatcacatct     789

actatgtaat aagtatatat atgtagtcca aaaaaaaaat gaagaatcga atagtaatat     849

catctggtct caattgagaa ctttgaggtc tgtgtatgaa aattaaagat tgtactgtaa     909

tgttcggttg tgggattctg agaagtaaca tttgtattgg tatggtatca agttgttctg     969

ccttgtctgc aaaaaaaaa                                                    988
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<210>  35
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<400>  35

Met Ala Ser Arg Asn Tyr Arg Trp Glu Leu Phe Ala Ala Ser Leu Ile
1               5               10                  15

Leu Thr Leu Ala Leu Ile His Leu Val Glu Ala Asn Ser Glu Gly Asp
            20                  25                  30

Ala Leu Tyr Ala Leu Arg Arg Ser Leu Thr Asp Pro Asp His Val Leu
        35                  40                  45

Gln Ser Trp Asp Pro Thr Leu Val Asn Pro Cys Thr Trp Phe His Val
    50                  55                  60

Thr Cys Asn Gln Asp Asn Arg Val Thr Arg Val Asp Leu Gly Asn Ser
65                  70                  75                  80

Asn Leu Ser Gly His Leu Ala Pro Glu Leu Gly Lys Leu Glu His Leu
                85                  90                  95
```

```
Gln Tyr Leu Glu Leu Tyr Lys Asn Asn Ile Gln Gly Thr Ile Pro Ser
            100                 105                 110


Glu Leu Gly Asn Leu Lys Asn Leu Ile Ser Leu Asp Leu Tyr Asn Asn
            115                 120                 125


Asn Leu Thr Gly Ile Val Pro Thr Ser Leu Gly Lys Leu Lys Ser Leu
    130                 135                 140


Val Phe Leu Arg Leu Asn Asp Asn Arg Leu Thr Gly Gln Ser Leu Glu
145                 150                 155                 160


His Ser Leu Pro Ile Pro Ser Leu Lys Ser Cys Gly Cys Leu Ser Asn
                165                 170                 175


Asp Leu Cys Gly Thr Ile Pro Thr Asn Gly Pro Phe Ala His Ile Pro
            180                 185                 190


Leu Gln Asn Phe Glu Asn Asn Pro Arg Leu Glu Gly Pro Glu Leu Leu
            195                 200                 205


Gly Leu Ala Ser Tyr Asp Thr Asn Cys Thr
    210                 215
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<212>   DNA
<213>   Arabidopsis thaliana


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                       Met Val Ala Gln Asn Ser Arg Arg Glu Leu Leu
                       1               5                   10

gca gct tcc ctg atc cta act tta gct cta att cgt cta acg gaa gca      101
Ala Ala Ser Leu Ile Leu Thr Leu Ala Leu Ile Arg Leu Thr Glu Ala
            15                  20                  25

aac tcc gaa ggg gac gct ctt cac gcg ctt cgc cgg agc tta tca gat      149
Asn Ser Glu Gly Asp Ala Leu His Ala Leu Arg Arg Ser Leu Ser Asp
        30                  35                  40

cca gac aat gtt gtt cag agt tgg gat cca act ctt gtt aat cct tgt      197
Pro Asp Asn Val Val Gln Ser Trp Asp Pro Thr Leu Val Asn Pro Cys
    45                  50                  55

act tgg ttt cat gtc act tgt aat caa cac cat caa gtc act cgt ctg      245
Thr Trp Phe His Val Thr Cys Asn Gln His His Gln Val Thr Arg Leu
60                  65                  70                  75
```

```
gat ttg ggg aat tca aac tta tct gga cat cta gta cct gaa ctt ggg    293
Asp Leu Gly Asn Ser Asn Leu Ser Gly His Leu Val Pro Glu Leu Gly
            80                  85                  90

aag ctt gaa cat tta caa tat ctt gaa ctc tac aaa aac gag att caa    341
Lys Leu Glu His Leu Gln Tyr Leu Glu Leu Tyr Lys Asn Glu Ile Gln
            95                  100                 105

gga act ata cct tct gag ctt gga aat ctg aag agt cta atc agt ttg    389
Gly Thr Ile Pro Ser Glu Leu Gly Asn Leu Lys Ser Leu Ile Ser Leu
            110                 115                 120

gat ctg tac aac aac aat ctc acc ggg aaa atc cca tct tct ttg gga    437
Asp Leu Tyr Asn Asn Asn Leu Thr Gly Lys Ile Pro Ser Ser Leu Gly
            125                 130                 135

aaa ttg aag cgg ctt aac gaa aac cga ttg acc ggt cct att cct aga    485
Lys Leu Lys Arg Leu Asn Glu Asn Arg Leu Thr Gly Pro Ile Pro Arg
140                 145                 150                 155

gaa ctc aca gtt att tca agc ctt aaa gtt gtt gat gtc tca ggg aat    533
Glu Leu Thr Val Ile Ser Ser Leu Lys Val Val Asp Val Ser Gly Asn
            160                 165                 170

gat ttg tgt gga aca att cca gta gaa gga cct ttt gaa cac att cct    581
Asp Leu Cys Gly Thr Ile Pro Val Glu Gly Pro Phe Glu His Ile Pro
            175                 180                 185

atg caa aac ttt gag aac aac ctg aga ttg gag gga cca gaa cta cta    629
Met Gln Asn Phe Glu Asn Asn Leu Arg Leu Glu Gly Pro Glu Leu Leu
            190                 195                 200

ggt ctt gcg agc tat gac acc aat tgc act taa aaagaagttg aagaa       677
Gly Leu Ala Ser Tyr Asp Thr Asn Cys Thr
            205                 210
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<210> 37
<211> 213
<212> PRT
<213> Arabidopsis thaliana

<400> 37

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Met Val Ala Gln Asn Ser Arg Arg Glu Leu Leu Ala Ala Ser Leu Ile
1               5                   10                  15


Leu Thr Leu Ala Leu Ile Arg Leu Thr Glu Ala Asn Ser Glu Gly Asp
            20                  25                  30


Ala Leu His Ala Leu Arg Arg Ser Leu Ser Asp Pro Asp Asn Val Val
            35                  40                  45


Gln Ser Trp Asp Pro Thr Leu Val Asn Pro Cys Thr Trp Phe His Val
        50                  55                  60


Thr Cys Asn Gln His His Gln Val Thr Arg Leu Asp Leu Gly Asn Ser
65                  70                  75                  80
```

```
Asn Leu Ser Gly His Leu Val Pro Glu Leu Gly Lys Leu Glu His Leu
              85              90              95
```

```
Gln Tyr Leu Glu Leu Tyr Lys Asn Glu Ile Gln Gly Thr Ile Pro Ser
             100             105             110
```

```
Glu Leu Gly Asn Leu Lys Ser Leu Ile Ser Leu Asp Leu Tyr Asn Asn
             115             120             125
```

```
Asn Leu Thr Gly Lys Ile Pro Ser Ser Leu Gly Lys Leu Lys Arg Leu
     130             135             140
```

```
Asn Glu Asn Arg Leu Thr Gly Pro Ile Pro Arg Glu Leu Thr Val Ile
145             150             155             160
```

```
Ser Ser Leu Lys Val Val Asp Val Ser Gly Asn Asp Leu Cys Gly Thr
             165             170             175
```

```
Ile Pro Val Glu Gly Pro Phe Glu His Ile Pro Met Gln Asn Phe Glu
             180             185             190
```

```
Asn Asn Leu Arg Leu Glu Gly Pro Glu Leu Leu Gly Leu Ala Ser Tyr
             195             200             205
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Asp Thr Asn Cys Thr
     210
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<212>  DNA
<213>  Arabidopsis thaliana


<220>
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<222>  (193)..(2070)

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atcgaaaaaa tgagtgagtt tgtgttgagg ttgtctctgt aaagtgttaa tggtggtgat   120

tttcggaagt tagggttttc tcggatctga agagatcaaa tcaagattcg aaatttacca   180

ttgttgtttg aa atg gag tcg agt tat gtg gtg ttt atc tta ctt tca ctg   231
               Met Glu Ser Ser Tyr Val Val Phe Ile Leu Leu Ser Leu
                1               5                   10

atc tta ctt ccg aat cat tca ctg tgg ctt gct tct gct aat ttg gaa   279
Ile Leu Leu Pro Asn His Ser Leu Trp Leu Ala Ser Ala Asn Leu Glu
 15              20              25

ggt gat gct ttg cat act ttg agg gtt act cta gtt gat cca aac aat   327
```

```
Gly Asp Ala Leu His Thr Leu Arg Val Thr Leu Val Asp Pro Asn Asn
30              35              40              45

gtc ttg cag agc tgg gat cct acg cta gtg aat cct tgc aca tgg ttc     375
Val Leu Gln Ser Trp Asp Pro Thr Leu Val Asn Pro Cys Thr Trp Phe
            50              55              60

cat gtc act tgc aac aac gag aac agt gtc ata aga gtt gat ttg ggg     423
His Val Thr Cys Asn Asn Glu Asn Ser Val Ile Arg Val Asp Leu Gly
            65              70              75

aat gca gag tta tct ggc cat tta gtt cca gag ctt ggt gtg ctc aag     471
Asn Ala Glu Leu Ser Gly His Leu Val Pro Glu Leu Gly Val Leu Lys
        80              85              90

aat ttg cag tat ttg gag ctt tac agt aac aac ata act ggc ccg att     519
Asn Leu Gln Tyr Leu Glu Leu Tyr Ser Asn Asn Ile Thr Gly Pro Ile
        95              100             105

cct agt aat ctt gga aat ctg aca aac tta gtg agt ttg gat ctt tac     567
Pro Ser Asn Leu Gly Asn Leu Thr Asn Leu Val Ser Leu Asp Leu Tyr
110             115             120             125

tta aac agc ttc tcc ggt cct att ccg gaa tca ttg gga aag ctt tca     615
Leu Asn Ser Phe Ser Gly Pro Ile Pro Glu Ser Leu Gly Lys Leu Ser
                130             135             140

aag ctg aga ttt ctc cgg ctt aac aac aac agt ctc act ggg tca att     663
Lys Leu Arg Phe Leu Arg Leu Asn Asn Asn Ser Leu Thr Gly Ser Ile
            145             150             155

cct atg tca ctg acc aat att act acc ctt caa gtg tta gat cta tca     711
Pro Met Ser Leu Thr Asn Ile Thr Thr Leu Gln Val Leu Asp Leu Ser
            160             165             170

aat aac aga ctc tct ggt tca gtt cct gac aat ggc tcc ttc tca ctc     759
Asn Asn Arg Leu Ser Gly Ser Val Pro Asp Asn Gly Ser Phe Ser Leu
            175             180             185

ttc aca ccc atc agt ttt gct aat aac tta gac cta tgt gga cct gtt     807
Phe Thr Pro Ile Ser Phe Ala Asn Asn Leu Asp Leu Cys Gly Pro Val
190             195             200             205

aca agt cac cca tgt cct gga tct ccc ccg ttt tct cct cca cca cct     855
Thr Ser His Pro Cys Pro Gly Ser Pro Pro Phe Ser Pro Pro Pro Pro
                210             215             220

ttt att caa cct ccc cca gtt tcc acc ccg agt ggg tat ggt ata act     903
Phe Ile Gln Pro Pro Pro Val Ser Thr Pro Ser Gly Tyr Gly Ile Thr
                225             230             235

gga gca ata gct ggt gga gtt gct gca ggt gct gct ttg ccc ttt gct     951
Gly Ala Ile Ala Gly Gly Val Ala Ala Gly Ala Ala Leu Pro Phe Ala
            240             245             250

gct cct gca ata gcc ttt gct tgg tgg cga cga aga agc cca cta gat     999
Ala Pro Ala Ile Ala Phe Ala Trp Trp Arg Arg Arg Ser Pro Leu Asp
        255             260             265

att ttc ttc gat gtc cct gcc gaa gaa gat cca gaa gtt cat ctg gga     1047
Ile Phe Phe Asp Val Pro Ala Glu Glu Asp Pro Glu Val His Leu Gly
270             275             280             285
```

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```
cag ctc aag agg ttt tct ttg cgg gag cta caa gtg gcg agt gat ggg      1095
Gln Leu Lys Arg Phe Ser Leu Arg Glu Leu Gln Val Ala Ser Asp Gly
            290             295             300

ttt agt aac aag aac att ttg ggc aga ggt ggg ttt ggg aaa gtc tac      1143
Phe Ser Asn Lys Asn Ile Leu Gly Arg Gly Gly Phe Gly Lys Val Tyr
            305             310             315

aag gga cgc ttg gca gac gga act ctt gtt gct gtc aag aga ctg aag      1191
Lys Gly Arg Leu Ala Asp Gly Thr Leu Val Ala Val Lys Arg Leu Lys
        320             325             330

gaa gag cga act cca ggt gga gag ctc cag ttt caa aca gaa gta gag      1239
Glu Glu Arg Thr Pro Gly Gly Glu Leu Gln Phe Gln Thr Glu Val Glu
        335             340             345

atg ata agt atg gca gtt cat cga aac ctg ttg aga tta cga ggt ttc      1287
Met Ile Ser Met Ala Val His Arg Asn Leu Leu Arg Leu Arg Gly Phe
350             355             360             365

tgt atg aca ccg acc gag aga ttg ctt gtg tat cct tac atg gcc aat      1335
Cys Met Thr Pro Thr Glu Arg Leu Leu Val Tyr Pro Tyr Met Ala Asn
            370             375             380

gga agt gtt gct tcg tgt ctc aga gag agg cca ccg tca caa cct ccg      1383
Gly Ser Val Ala Ser Cys Leu Arg Glu Arg Pro Pro Ser Gln Pro Pro
            385             390             395

ctt gat tgg cca acg cgg aag aga atc gcg cta ggc tca gct cga ggt      1431
Leu Asp Trp Pro Thr Arg Lys Arg Ile Ala Leu Gly Ser Ala Arg Gly
            400             405             410

ttg tct tac cta cat gat cac tgc gat ccg aag atc att cac cgt gac      1479
Leu Ser Tyr Leu His Asp His Cys Asp Pro Lys Ile Ile His Arg Asp
            415             420             425

gta aaa gca gca aac atc ctc tta gac gaa gaa ttc gaa gcg gtt gtt      1527
Val Lys Ala Ala Asn Ile Leu Leu Asp Glu Glu Phe Glu Ala Val Val
430             435             440             445

gga gat ttc ggg ttg gca aag ctt atg gac tat aaa gac act cac gtg      1575
Gly Asp Phe Gly Leu Ala Lys Leu Met Asp Tyr Lys Asp Thr His Val
            450             455             460

aca aca gca gtc cgt ggc acc atc ggt cac atc gct cca gaa tat ctc      1623
Thr Thr Ala Val Arg Gly Thr Ile Gly His Ile Ala Pro Glu Tyr Leu
            465             470             475

tca acc gga aaa tct tca gag aaa acc gac gtt ttc gga tac gga atc      1671
Ser Thr Gly Lys Ser Ser Glu Lys Thr Asp Val Phe Gly Tyr Gly Ile
            480             485             490

atg ctt cta gaa cta atc aca gga caa aga gct ttc gat ctc gct cgg      1719
Met Leu Leu Glu Leu Ile Thr Gly Gln Arg Ala Phe Asp Leu Ala Arg
        495             500             505

cta gct aac gac gac gac gtc atg tta ctt gac tgg gtg aaa gga ttg      1767
Leu Ala Asn Asp Asp Asp Val Met Leu Leu Asp Trp Val Lys Gly Leu
510             515             520             525

ttg aag gag aag aag cta gag atg tta gtg gat cca gat ctt caa aca      1815
Leu Lys Glu Lys Lys Leu Glu Met Leu Val Asp Pro Asp Leu Gln Thr
            530             535             540
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aac tac gag gag aga gaa ctg gaa caa gtg ata caa gtg gcg ttg cta          1863
Asn Tyr Glu Glu Arg Glu Leu Glu Gln Val Ile Gln Val Ala Leu Leu
            545                 550                 555

tgc acg caa gga tca cca atg gaa aga cca aag atg tct gaa gtt gta          1911
Cys Thr Gln Gly Ser Pro Met Glu Arg Pro Lys Met Ser Glu Val Val
            560                 565                 570

agg atg ctg gaa gga gat ggg ctt gcg gag aaa tgg gac gaa tgg caa          1959
Arg Met Leu Glu Gly Asp Gly Leu Ala Glu Lys Trp Asp Glu Trp Gln
            575                 580                 585

aaa gtt gag att ttg agg gaa gag att gat ttg agt cct aat cct aac          2007
Lys Val Glu Ile Leu Arg Glu Glu Ile Asp Leu Ser Pro Asn Pro Asn
590                 595                 600                 605

tct gat tgg att ctt gat tct act tac aat ttg cac gcc gtt gag tta          2055
Ser Asp Trp Ile Leu Asp Ser Thr Tyr Asn Leu His Ala Val Glu Leu
            610                 615                 620

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Ser Gly Pro Arg
            625
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Pro Asn His Ser Leu Trp Leu Ala Ser Ala Asn Leu Glu Gly Asp Ala
            20                  25                  30

Leu His Thr Leu Arg Val Thr Leu Val Asp Pro Asn Asn Val Leu Gln
            35                  40                  45

Ser Trp Asp Pro Thr Leu Val Asn Pro Cys Thr Trp Phe His Val Thr
        50                  55                  60

Cys Asn Asn Glu Asn Ser Val Ile Arg Val Asp Leu Gly Asn Ala Glu
65                  70                  75                  80

Leu Ser Gly His Leu Val Pro Glu Leu Gly Val Leu Lys Asn Leu Gln
                85                  90                  95

Tyr Leu Glu Leu Tyr Ser Asn Asn Ile Thr Gly Pro Ile Pro Ser Asn
            100                 105                 110

Leu Gly Asn Leu Thr Asn Leu Val Ser Leu Asp Leu Tyr Leu Asn Ser
            115                 120                 125
```
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Phe Ser Gly Pro Ile Pro Glu Ser Leu Gly Lys Leu Ser Lys Leu Arg
    130   135   140

Phe Leu Arg Leu Asn Asn Asn Ser Leu Thr Gly Ser Ile Pro Met Ser
145   150   155   160

Leu Thr Asn Ile Thr Thr Leu Gln Val Leu Asp Leu Ser Asn Asn Arg
            165   170   175

Leu Ser Gly Ser Val Pro Asp Asn Gly Ser Phe Ser Leu Phe Thr Pro
        180   185   190

Ile Ser Phe Ala Asn Asn Leu Asp Leu Cys Gly Pro Val Thr Ser His
        195   200   205

Pro Cys Pro Gly Ser Pro Pro Phe Ser Pro Pro Pro Phe Ile Gln
    210   215   220

Pro Pro Pro Val Ser Thr Pro Ser Gly Tyr Gly Ile Thr Gly Ala Ile
225   230   235   240

Ala Gly Gly Val Ala Ala Gly Ala Ala Leu Pro Phe Ala Ala Pro Ala
        245   250   255

Ile Ala Phe Ala Trp Trp Arg Arg Arg Ser Pro Leu Asp Ile Phe Phe
        260   265   270

Asp Val Pro Ala Glu Glu Asp Pro Glu Val His Leu Gly Gln Leu Lys
        275   280   285

Arg Phe Ser Leu Arg Glu Leu Gln Val Ala Ser Asp Gly Phe Ser Asn
    290   295   300

Lys Asn Ile Leu Gly Arg Gly Gly Phe Gly Lys Val Tyr Lys Gly Arg
305   310   315   320

Leu Ala Asp Gly Thr Leu Val Ala Val Lys Arg Leu Lys Glu Glu Arg
            325   330   335

Thr Pro Gly Gly Glu Leu Gln Phe Gln Thr Glu Val Glu Met Ile Ser
        340   345   350

Met Ala Val His Arg Asn Leu Leu Arg Leu Arg Gly Phe Cys Met Thr
.   355   360   365

Pro Thr Glu Arg Leu Leu Val Tyr Pro Tyr Met Ala Asn Gly Ser Val
                         Page 46

Ala Ser Cys Leu Arg Glu Arg Pro Pro Ser Gln Pro Pro Leu Asp Trp
385   390   395   400

Pro Thr Arg Lys Arg Ile Ala Leu Gly Ser Ala Arg Gly Leu Ser Tyr
            405   410   415

Leu His Asp His Cys Asp Pro Lys Ile Ile His Arg Asp Val Lys Ala
            420   425   430

Ala Asn Ile Leu Leu Asp Glu Glu Phe Glu Ala Val Val Gly Asp Phe
            435   440   445

Gly Leu Ala Lys Leu Met Asp Tyr Lys Asp Thr His Val Thr Thr Ala
    450   455   460

Val Arg Gly Thr Ile Gly His Ile Ala Pro Glu Tyr Leu Ser Thr Gly
465   470   475   480

Lys Ser Ser Glu Lys Thr Asp Val Phe Gly Tyr Gly Ile Met Leu Leu
            485   490   495

Glu Leu Ile Thr Gly Gln Arg Ala Phe Asp Leu Ala Arg Leu Ala Asn
            500   505   510

Asp Asp Asp Val Met Leu Leu Asp Trp Val Lys Gly Leu Leu Lys Glu
            515   520   525

Lys Lys Leu Glu Met Leu Val Asp Pro Asp Leu Gln Thr Asn Tyr Glu
    530   535   540

Glu Arg Glu Leu Glu Gln Val Ile Gln Val Ala Leu Leu Cys Thr Gln
545   550   555   560

Gly Ser Pro Met Glu Arg Pro Lys Met Ser Glu Val Val Arg Met Leu
            565   570   575

Glu Gly Asp Gly Leu Ala Glu Lys Trp Asp Glu Trp Gln Lys Val Glu
            580   585   590

Ile Leu Arg Glu Glu Ile Asp Leu Ser Pro Asn Pro Asn Ser Asp Trp
    595   600   605

Ile Leu Asp Ser Thr Tyr Asn Leu His Ala Val Glu Leu Ser Gly Pro
    610   615   620

Arg
625


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                              Met Glu Gly Val Arg Phe Val Val Trp
                              1               5

aga tta gga ttt ctg gtt ttt gta tgg ttc ttt gat atc tct tct gct       102
Arg Leu Gly Phe Leu Val Phe Val Trp Phe Phe Asp Ile Ser Ser Ala
10               15              20              25

aca ctt tct cct act ggt gta aac tat gaa gtg aca gct ttg gtt gct       150
Thr Leu Ser Pro Thr Gly Val Asn Tyr Glu Val Thr Ala Leu Val Ala
                30              35              40

gtg aag aat gaa ttg aat gat ccg tac aaa gtt ctt gag aat tgg gat       198
Val Lys Asn Glu Leu Asn Asp Pro Tyr Lys Val Leu Glu Asn Trp Asp
            45              50              55

gtg aat tca gtt gat cct tgt agc tgg aga atg gtt tct tgc act gat       246
Val Asn Ser Val Asp Pro Cys Ser Trp Arg Met Val Ser Cys Thr Asp
            60              65              70

ggc tat gtc tct tca ctg gat ctt cct agc caa agc ttg tct ggt aca       294
Gly Tyr Val Ser Ser Leu Asp Leu Pro Ser Gln Ser Leu Ser Gly Thr
        75              80              85

ttg tct cct aga atc gga aac ctc acc tat tta caa tca gtg gtg ttg       342
Leu Ser Pro Arg Ile Gly Asn Leu Thr Tyr Leu Gln Ser Val Val Leu
90              95              100             105

caa aac aat gca atc act ggt cca att ccg gaa acg att ggg agg ttg       390
Gln Asn Asn Ala Ile Thr Gly Pro Ile Pro Glu Thr Ile Gly Arg Leu
                110             115             120

gag aag ctt cag tca ctt gat ctt tcg aac aat tca ttc acc ggg gag       438
Glu Lys Leu Gln Ser Leu Asp Leu Ser Asn Asn Ser Phe Thr Gly Glu
            125             130             135

ata ccg gcc tca ctt gga gaa ctc aag aac ttg aat tac ttg cgg tta       486
Ile Pro Ala Ser Leu Gly Glu Leu Lys Asn Leu Asn Tyr Leu Arg Leu
            140             145             150

aac aat aac agt ctt ata gga act tgc cct gag tct cta tcc aag att       534
Asn Asn Asn Ser Leu Ile Gly Thr Cys Pro Glu Ser Leu Ser Lys Ile
        155             160             165

gag gga ctc act cta gtc gac att tcg tat aac aat ctt agt ggt tcg       582
Glu Gly Leu Thr Leu Val Asp Ile Ser Tyr Asn Asn Leu Ser Gly Ser
170             175             180             185
```

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```
ctg cca aaa gtt tct gcc aga act ttc aag gta att ggt aat gcg tta      630
Leu Pro Lys Val Ser Ala Arg Thr Phe Lys Val Ile Gly Asn Ala Leu
                190                 195                 200

atc tgt ggc cca aaa gct gtt tca aac tgt tct gct gtt ccc gag cct      678
Ile Cys Gly Pro Lys Ala Val Ser Asn Cys Ser Ala Val Pro Glu Pro
            205                 210                 215

ctc acg ctt cca caa gat ggt cca gat gaa tca gga act cgt acc aat      726
Leu Thr Leu Pro Gln Asp Gly Pro Asp Glu Ser Gly Thr Arg Thr Asn
        220                 225                 230

ggc cat cac gtt gct ctt gca ttt gcc gca agc ttc agt gca gca ttt      774
Gly His His Val Ala Leu Ala Phe Ala Ala Ser Phe Ser Ala Ala Phe
    235                 240                 245

ttt gtt ttc ttt aca agc gga atg ttt ctt tgg tgg aga tat cgc cgt      822
Phe Val Phe Phe Thr Ser Gly Met Phe Leu Trp Trp Arg Tyr Arg Arg
250                 255                 260                 265

aac aag caa ata ttt ttt gac gtt aat gaa caa tat gat cca gaa gtg      870
Asn Lys Gln Ile Phe Phe Asp Val Asn Glu Gln Tyr Asp Pro Glu Val
                270                 275                 280

agt tta ggg cac ttg aag agg tat aca ttc aaa gag ctt aga tct gcc      918
Ser Leu Gly His Leu Lys Arg Tyr Thr Phe Lys Glu Leu Arg Ser Ala
            285                 290                 295

acc aat cat ttc aac tcg aag aac att ctc gga aga ggc gga tac ggg      966
Thr Asn His Phe Asn Ser Lys Asn Ile Leu Gly Arg Gly Gly Tyr Gly
        300                 305                 310

att gtg tac aaa gga cac tta aac gat gga act ttg gtg gct gtc aaa     1014
Ile Val Tyr Lys Gly His Leu Asn Asp Gly Thr Leu Val Ala Val Lys
    315                 320                 325

cgt ctc aag gac tgt aac att gcg ggt gga gaa gtc cag ttt cag aca     1062
Arg Leu Lys Asp Cys Asn Ile Ala Gly Gly Glu Val Gln Phe Gln Thr
330                 335                 340                 345

gaa gta gag act ata agt ttg gct ctt cat cgc aat ctc ctc cgg ctc     1110
Glu Val Glu Thr Ile Ser Leu Ala Leu His Arg Asn Leu Leu Arg Leu
                350                 355                 360

cgc ggt ttc tgt agt agc aac cag gag aga att tta gtc tac cct tac     1158
Arg Gly Phe Cys Ser Ser Asn Gln Glu Arg Ile Leu Val Tyr Pro Tyr
            365                 370                 375

atg cca aat ggg agt gtc gca tca cgc tta aaa gat aat atc cgt gga     1206
Met Pro Asn Gly Ser Val Ala Ser Arg Leu Lys Asp Asn Ile Arg Gly
            380                 385                 390

gag cca gca tta gac tgg tcg aga agg aag aag ata gcg gtt ggg aca     1254
Glu Pro Ala Leu Asp Trp Ser Arg Arg Lys Lys Ile Ala Val Gly Thr
    395                 400                 405

gcg aga gga cta gtt tac cta cac gag caa tgt gac ccg aag att ata     1302
Ala Arg Gly Leu Val Tyr Leu His Glu Gln Cys Asp Pro Lys Ile Ile
410                 415                 420                 425

cac cgc gat gtg aaa gca gct aac att ctg tta gat gag gac ttc gaa     1350
His Arg Asp Val Lys Ala Ala Asn Ile Leu Leu Asp Glu Asp Phe Glu
                430                 435                 440
```

```
gca gtt gtt ggt gat ttt ggg tta gct aag ctt cta gac cat aga gac      1398
Ala Val Val Gly Asp Phe Gly Leu Ala Lys Leu Leu Asp His Arg Asp
            445             450             455

tct cat gtc aca act gca gtc cgt gga act gtt ggc cac att gca cct      1446
Ser His Val Thr Thr Ala Val Arg Gly Thr Val Gly His Ile Ala Pro
            460             465             470

gag tac tta tcc acg ggt cag tcc tca gag aag act gat gtc ttt ggc      1494
Glu Tyr Leu Ser Thr Gly Gln Ser Ser Glu Lys Thr Asp Val Phe Gly
            475             480             485

ttt ggc ata ctt ctc ctt gag ctc att act ggt cag aaa gct ctt gat      1542
Phe Gly Ile Leu Leu Leu Glu Leu Ile Thr Gly Gln Lys Ala Leu Asp
490             495             500             505

ttt ggc aga tcc gca cac cag aaa ggt gta atg ctt gac tgg gtg aag      1590
Phe Gly Arg Ser Ala His Gln Lys Gly Val Met Leu Asp Trp Val Lys
            510             515             520

aag ctg cac caa gaa ggg aaa cta aag cag tta ata gac aaa gat cta      1638
Lys Leu His Gln Glu Gly Lys Leu Lys Gln Leu Ile Asp Lys Asp Leu
            525             530             535

aat gac aag ttc gat aga gta gaa ctc gaa gaa atc gtt caa gtt gcg      1686
Asn Asp Lys Phe Asp Arg Val Glu Leu Glu Glu Ile Val Gln Val Ala
            540             545             550

cta ctc tgc act caa ttc aat cca tct cat cga ccg aaa atg tca gaa      1734
Leu Leu Cys Thr Gln Phe Asn Pro Ser His Arg Pro Lys Met Ser Glu
            555             560             565

gtt atg aag atg ctt gaa ggt gac ggt ttg gct gag aga tgg gaa gcg      1782
Val Met Lys Met Leu Glu Gly Asp Gly Leu Ala Glu Arg Trp Glu Ala
570             575             580             585

acg cag aac ggt act ggt gag cat cag cca ccg cca ttg cca ccg ggg      1830
Thr Gln Asn Gly Thr Gly Glu His Gln Pro Pro Pro Leu Pro Pro Gly
            590             595             600

atg gtg agt tct tcg ccg cgt gtg agg tat tac tcg gat tat att cag      1878
Met Val Ser Ser Ser Pro Arg Val Arg Tyr Tyr Ser Asp Tyr Ile Gln
            605             610             615

gaa tcg tct ctt gta gta gaa gcc att gag ctc tcg ggt cct cga tga      1926
Glu Ser Ser Leu Val Val Glu Ala Ile Glu Leu Ser Gly Pro Arg
            620             625             630

ttatgactca ctgtttttaa aaaa                                            1950
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Val Trp Phe Phe Asp Ile Ser Ser Ala Thr Leu Ser Pro Thr Gly Val
            20   25   30

Asn Tyr Glu Val Thr Ala Leu Val Ala Val Lys Asn Glu Leu Asn Asp
            35   40   45

Pro Tyr Lys Val Leu Glu Asn Trp Asp Val Asn Ser Val Asp Pro Cys
    50   55   60

Ser Trp Arg Met Val Ser Cys Thr Asp Gly Tyr Val Ser Ser Leu Asp
65   70   75   80

Leu Pro Ser Gln Ser Leu Ser Gly Thr Leu Ser Pro Arg Ile Gly Asn
            85   90   95

Leu Thr Tyr Leu Gln Ser Val Val Leu Gln Asn Asn Ala Ile Thr Gly
            100   105   110

Pro Ile Pro Glu Thr Ile Gly Arg Leu Glu Lys Leu Gln Ser Leu Asp
            115   120   125

Leu Ser Asn Asn Ser Phe Thr Gly Glu Ile Pro Ala Ser Leu Gly Glu
    130   135   140

Leu Lys Asn Leu Asn Tyr Leu Arg Leu Asn Asn Asn Ser Leu Ile Gly
145   150   155   160

Thr Cys Pro Glu Ser Leu Ser Lys Ile Glu Gly Leu Thr Leu Val Asp
            165   170   175

Ile Ser Tyr Asn Asn Leu Ser Gly Ser Leu Pro Lys Val Ser Ala Arg
            180   185   190

Thr Phe Lys Val Ile Gly Asn Ala Leu Ile Cys Gly Pro Lys Ala Val
            195   200   205

Ser Asn Cys Ser Ala Val Pro Glu Pro Leu Thr Leu Pro Gln Asp Gly
    210   215   220

Pro Asp Glu Ser Gly Thr Arg Thr Asn Gly His His Val Ala Leu Ala
225   230   235   240

Phe Ala Ala Ser Phe Ser Ala Ala Phe Phe Val Phe Phe Thr Ser Gly
            245   250   255

Met Phe Leu Trp Trp Arg Tyr Arg Arg Asn Lys Gln Ile Phe Phe Asp
            260   265   270

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Val Asn Glu Gln Tyr Asp Pro Glu Val Ser Leu Gly His Leu Lys Arg
        275   280   285

Tyr Thr Phe Lys Glu Leu Arg Ser Ala Thr Asn His Phe Asn Ser Lys
    290   295   300

Asn Ile Leu Gly Arg Gly Gly Tyr Gly Ile Val Tyr Lys Gly His Leu
305   310   315   320

Asn Asp Gly Thr Leu Val Ala Val Lys Arg Leu Lys Asp Cys Asn Ile
            325   330   335

Ala Gly Gly Glu Val Gln Phe Gln Thr Glu Val Glu Thr Ile Ser Leu
            340   345   350

Ala Leu His Arg Asn Leu Leu Arg Leu Arg Gly Phe Cys Ser Ser Asn
            355   360   365

Gln Glu Arg Ile Leu Val Tyr Pro Tyr Met Pro Asn Gly Ser Val Ala
    370   375   380

Ser Arg Leu Lys Asp Asn Ile Arg Gly Glu Pro Ala Leu Asp Trp Ser
385   390   395   400

Arg Arg Lys Lys Ile Ala Val Gly Thr Ala Arg Gly Leu Val Tyr Leu
            405   410   415

His Glu Gln Cys Asp Pro Lys Ile Ile His Arg Asp Val Lys Ala Ala
            420   425   430

Asn Ile Leu Leu Asp Glu Asp Phe Glu Ala Val Val Gly Asp Phe Gly
            435   440   445

Leu Ala Lys Leu Leu Asp His Arg Asp Ser His Val Thr Thr Ala Val
    450   455   460

Arg Gly Thr Val Gly His Ile Ala Pro Glu Tyr Leu Ser Thr Gly Gln
465   470   475   480

Ser Ser Glu Lys Thr Asp Val Phe Gly Phe Gly Ile Leu Leu Leu Glu
            485   490   495

Leu Ile Thr Gly Gln Lys Ala Leu Asp Phe Gly Arg Ser Ala His Gln
            500   505   510

Lys Gly Val Met Leu Asp Trp Val Lys Lys Leu His Gln Glu Gly Lys
    515   520   525

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Leu Lys Gln Leu Ile Asp Lys Asp Leu Asn Asp Lys Phe Asp Arg Val
    530             535             540

Glu Leu Glu Glu Ile Val Gln Val Ala Leu Leu Cys Thr Gln Phe Asn
545             550             555             560

Pro Ser His Arg Pro Lys Met Ser Glu Val Met Lys Met Leu Glu Gly
                565             570             575

Asp Gly Leu Ala Glu Arg Trp Glu Ala Thr Gln Asn Gly Thr Gly Glu
            580             585             590

His Gln Pro Pro Pro Leu Pro Pro Gly Met Val Ser Ser Ser Pro Arg
        595             600             605

Val Arg Tyr Tyr Ser Asp Tyr Ile Gln Glu Ser Ser Leu Val Val Glu
    610             615             620

Ala Ile Glu Leu Ser Gly Pro Arg
625             630
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                           Met Ala Leu Leu Ile Ile Thr Ala Leu
                           1               5

gtt ttt agt agt tta tgg tca tct gtg tca cca gat gct caa ggg gat         99
Val Phe Ser Ser Leu Trp Ser Ser Val Ser Pro Asp Ala Gln Gly Asp
10              15              20              25

gca tta ttt gcg ttg agg agc tcg tta cgt gca tct cct gaa cag ctt        147
Ala Leu Phe Ala Leu Arg Ser Ser Leu Arg Ala Ser Pro Glu Gln Leu
                30              35              40

agt gat tgg aac cag aat caa gtc gat cct tgt act tgg tct caa gtt        195
Ser Asp Trp Asn Gln Asn Gln Val Asp Pro Cys Thr Trp Ser Gln Val
            45              50              55

att tgt gat gac aag aaa cat gtt act tct gta acc ttg tct tac atg        243
Ile Cys Asp Asp Lys Lys His Val Thr Ser Val Thr Leu Ser Tyr Met
        60              65              70

aac ttc tcc tcg gga aca ctg tct tca gga ata gga atc ttg aca act        291
Asn Phe Ser Ser Gly Thr Leu Ser Ser Gly Ile Gly Ile Leu Thr Thr
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ctc aag act ctt aca ttg aag gga aat gga ata atg ggt gga ata cca      339
Leu Lys Thr Leu Thr Leu Lys Gly Asn Gly Ile Met Gly Gly Ile Pro
90                  95                  100                 105

gaa tcc att gga aat ctg tct agc ttg acc agc tta gat ttg gag gat      387
Glu Ser Ile Gly Asn Leu Ser Ser Leu Thr Ser Leu Asp Leu Glu Asp
                110                 115                 120

aat cac tta act gat cgc att cca tcc act ctc ggt aat ctc aag aat      435
Asn His Leu Thr Asp Arg Ile Pro Ser Thr Leu Gly Asn Leu Lys Asn
                125                 130                 135

cta cag ttc ttc agg acc ttg agt agg aat aac ctt aat ggt tct atc      483
Leu Gln Phe Phe Arg Thr Leu Ser Arg Asn Asn Leu Asn Gly Ser Ile
            140                 145                 150

ccg gat tca ctt aca ggt cta tca aaa ctg ata aat att ctg ctc gac      531
Pro Asp Ser Leu Thr Gly Leu Ser Lys Leu Ile Asn Ile Leu Leu Asp
            155                 160                 165

tca aat aat ctc agt ggt gag att cct cag agt tta ttc aaa atc cca      579
Ser Asn Asn Leu Ser Gly Glu Ile Pro Gln Ser Leu Phe Lys Ile Pro
170                 175                 180                 185

aaa tac aat ttc aca gca aac aac ttg agc tgt ggt ggc act ttc ccg      627
Lys Tyr Asn Phe Thr Ala Asn Asn Leu Ser Cys Gly Gly Thr Phe Pro
                190                 195                 200

caa cct tgt gta acc gag tcc agt cct tca ggt gat tca agc agt aga      675
Gln Pro Cys Val Thr Glu Ser Ser Pro Ser Gly Asp Ser Ser Ser Arg
            205                 210                 215

aaa act gga atc atc gct gga gtt gtt agc gga ata gcg gtt att cta      723
Lys Thr Gly Ile Ile Ala Gly Val Val Ser Gly Ile Ala Val Ile Leu
            220                 225                 230

cta gga ttc ttc ttc ttt ttc ttc tgc aag gat aaa cat aaa gga tat      771
Leu Gly Phe Phe Phe Phe Phe Phe Cys Lys Asp Lys His Lys Gly Tyr
            235                 240                 245

aaa cga gac gta ttt gtg gat gtt gca gga acg aac ttt aaa aaa ggt      819
Lys Arg Asp Val Phe Val Asp Val Ala Gly Thr Asn Phe Lys Lys Gly
250                 255                 260                 265

ttg att tca ggt gaa gtg gac aga agg att gct ttt gga cag ttg aga      867
Leu Ile Ser Gly Glu Val Asp Arg Arg Ile Ala Phe Gly Gln Leu Arg
            270                 275                 280

aga ttt gca tgg aga gag ctt cag ttg gct aca gat gag ttc agt gaa      915
Arg Phe Ala Trp Arg Glu Leu Gln Leu Ala Thr Asp Glu Phe Ser Glu
            285                 290                 295

aag aat gtt ctc gga caa gga ggc ttt ggg aaa gtt tac aaa gga ttg      963
Lys Asn Val Leu Gly Gln Gly Gly Phe Gly Lys Val Tyr Lys Gly Leu
            300                 305                 310

ctt tcg gat ggc acc aaa gtc gct gta aaa aga ttg act gat ttt gaa      1011
Leu Ser Asp Gly Thr Lys Val Ala Val Lys Arg Leu Thr Asp Phe Glu
            315                 320                 325

cgt cca gga gga gat gaa gct ttc cag aga gaa gtt gag atg ata agt      1059
Arg Pro Gly Gly Asp Glu Ala Phe Gln Arg Glu Val Glu Met Ile Ser
```

```
Arg Pro Gly Gly Asp Glu Ala Phe Gln Arg Glu Val Glu Met Ile Ser
330             335             340             345
```

```
gta gct gtt cat agg aat ctg ctt cgc ctt atc ggc ttt tgt aca aca    1107
Val Ala Val His Arg Asn Leu Leu Arg Leu Ile Gly Phe Cys Thr Thr
            350             355             360
```

```
caa act gaa cga ctt ttg gtg tat cct ttc atg cag aat cta agt gtt    1155
Gln Thr Glu Arg Leu Leu Val Tyr Pro Phe Met Gln Asn Leu Ser Val
            365             370             375
```

```
gca tat tgc tta aga gag att aaa ccc ggg gat cca gtt ctg gat tgg    1203
Ala Tyr Cys Leu Arg Glu Ile Lys Pro Gly Asp Pro Val Leu Asp Trp
            380             385             390
```

```
ttc agg agg aaa cag att gcg tta ggt gca gca cga gga ctc gaa tat    1251
Phe Arg Arg Lys Gln Ile Ala Leu Gly Ala Ala Arg Gly Leu Glu Tyr
            395             400             405
```

```
ctt cat gaa cat tgc aac ccg aag atc ata cac aga gat gtg aaa gct    1299
Leu His Glu His Cys Asn Pro Lys Ile Ile His Arg Asp Val Lys Ala
410             415             420             425
```

```
gca aat gtg tta cta gat gaa gac ttt gaa gca gtg gtt ggt gat ttt    1347
Ala Asn Val Leu Leu Asp Glu Asp Phe Glu Ala Val Val Gly Asp Phe
            430             435             440
```

```
ggt tta gcc aag ttg gta gat gtt aga agg act aat gta acc act cag    1395
Gly Leu Ala Lys Leu Val Asp Val Arg Arg Thr Asn Val Thr Thr Gln
            445             450             455
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```
gtc cga gga aca atg ggt cat att gca cca gaa tgt ata tcc aca ggg    1443
Val Arg Gly Thr Met Gly His Ile Ala Pro Glu Cys Ile Ser Thr Gly
            460             465             470
```

```
aaa tcg tca gag aaa acc gat gtt ttc ggg tac gga att atg ctt ctg    1491
Lys Ser Ser Glu Lys Thr Asp Val Phe Gly Tyr Gly Ile Met Leu Leu
            475             480             485
```

```
gag ctt gta act gga caa aga gca att gat ttc tcg cgg tta gag gaa    1539
Glu Leu Val Thr Gly Gln Arg Ala Ile Asp Phe Ser Arg Leu Glu Glu
490             495             500             505
```

```
gaa gat gat gtc tta ttg cta gac cat gtg aag aaa ctg gaa aga gag    1587
Glu Asp Asp Val Leu Leu Leu Asp His Val Lys Lys Leu Glu Arg Glu
            510             515             520
```

```
aag aga tta gaa gac ata gta gat aag aag ctt gat gag gat tat ata    1635
Lys Arg Leu Glu Asp Ile Val Asp Lys Lys Leu Asp Glu Asp Tyr Ile
            525             530             535
```

```
aag gaa gaa gtt gaa atg atg ata caa gta gct ctg cta tgc aca caa    1683
Lys Glu Glu Val Glu Met Met Ile Gln Val Ala Leu Leu Cys Thr Gln
            540             545             550
```

```
gca gca ccg gaa gaa cga cca gcg atg tcg gaa gta gta aga atg cta    1731
Ala Ala Pro Glu Glu Arg Pro Ala Met Ser Glu Val Val Arg Met Leu
            555             560             565
```

```
gaa gga gaa ggg ctt gca gag aga tgg gaa gag tgg cag aat ctt gaa    1779
Glu Gly Glu Gly Leu Ala Glu Arg Trp Glu Glu Trp Gln Asn Leu Glu
570             575             580             585
```

```
gtg acg aga caa gaa gag ttt cag agg ttg cag agg aga ttt gat tgg    1827
Val Thr Arg Gln Glu Glu Phe Gln Arg Leu Gln Arg Arg Phe Asp Trp
            590             595             600

ggt gaa gat tcc att aat aat caa gat gct att gaa tta tct ggt gga    1875
Gly Glu Asp Ser Ile Asn Asn Gln Asp Ala Ile Glu Leu Ser Gly Gly
            605             610             615

aga tag aaacaaaaaa                                                  1891
Arg
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Met Ala Leu Leu Ile Ile Thr Ala Leu Val Phe Ser Ser Leu Trp Ser
1               5               10              15

Ser Val Ser Pro Asp Ala Gln Gly Asp Ala Leu Phe Ala Leu Arg Ser
            20              25              30

Ser Leu Arg Ala Ser Pro Glu Gln Leu Ser Asp Trp Asn Gln Asn Gln
        35              40              45

Val Asp Pro Cys Thr Trp Ser Gln Val Ile Cys Asp Asp Lys Lys His
    50              55              60

Val Thr Ser Val Thr Leu Ser Tyr Met Asn Phe Ser Ser Gly Thr Leu
65              70              75              80

Ser Ser Gly Ile Gly Ile Leu Thr Thr Leu Lys Thr Leu Thr Leu Lys
                85              90              95

Gly Asn Gly Ile Met Gly Gly Ile Pro Glu Ser Ile Gly Asn Leu Ser
            100             105             110

Ser Leu Thr Ser Leu Asp Leu Glu Asp Asn His Leu Thr Asp Arg Ile
        115             120             125

Pro Ser Thr Leu Gly Asn Leu Lys Asn Leu Gln Phe Phe Arg Thr Leu
    130             135             140

Ser Arg Asn Asn Leu Asn Gly Ser Ile Pro Asp Ser Leu Thr Gly Leu
145             150             155             160

Ser Lys Leu Ile Asn Ile Leu Leu Asp Ser Asn Asn Leu Ser Gly Glu
                165             170             175
```

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Ile Pro Gln Ser Leu Phe Lys Ile Pro Lys Tyr Asn Phe Thr Ala Asn
       180   185   190

Asn Leu Ser Cys Gly Gly Thr Phe Pro Gln Pro Cys Val Thr Glu Ser
       195   200   205

Ser Pro Ser Gly Asp Ser Ser Ser Arg Lys Thr Gly Ile Ile Ala Gly
   210   215   220

Val Val Ser Gly Ile Ala Val Ile Leu Leu Gly Phe Phe Phe Phe Phe
225   230   235   240

Phe Cys Lys Asp Lys His Lys Gly Tyr Lys Arg Asp Val Phe Val Asp
          245   250   255

Val Ala Gly Thr Asn Phe Lys Lys Gly Leu Ile Ser Gly Glu Val Asp
       260   265   270

Arg Arg Ile Ala Phe Gly Gln Leu Arg Arg Phe Ala Trp Arg Glu Leu
      275   280   285

Gln Leu Ala Thr Asp Glu Phe Ser Glu Lys Asn Val Leu Gly Gln Gly
   290   295   300

Gly Phe Gly Lys Val Tyr Lys Gly Leu Leu Ser Asp Gly Thr Lys Val
305   310   315   320

Ala Val Lys Arg Leu Thr Asp Phe Glu Arg Pro Gly Gly Asp Glu Ala
          325   330   335

Phe Gln Arg Glu Val Glu Met Ile Ser Val Ala Val His Arg Asn Leu
       340   345   350

Leu Arg Leu Ile Gly Phe Cys Thr Thr Gln Thr Glu Arg Leu Leu Val
      355   360   365

Tyr Pro Phe Met Gln Asn Leu Ser Val Ala Tyr Cys Leu Arg Glu Ile
   370   375   380

Lys Pro Gly Asp Pro Val Leu Asp Trp Phe Arg Arg Lys Gln Ile Ala
385   390   395   400

Leu Gly Ala Ala Arg Gly Leu Glu Tyr Leu His Glu His Cys Asn Pro
          405   410   415

Lys Ile Ile His Arg Asp Val Lys Ala Ala Asn Val Leu Leu Asp Glu
       420   425   430

Asp Phe Glu Ala Val Val Gly Asp Phe Gly Leu Ala Lys Leu Val Asp
        435   440   445

Val Arg Arg Thr Asn Val Thr Thr Gln Val Arg Gly Thr Met Gly His
    450   455   460

Ile Ala Pro Glu Cys Ile Ser Thr Gly Lys Ser Ser Glu Lys Thr Asp
465   470   475   480

Val Phe Gly Tyr Gly Ile Met Leu Leu Glu Leu Val Thr Gly Gln Arg
            485   490   495

Ala Ile Asp Phe Ser Arg Leu Glu Glu Glu Asp Asp Val Leu Leu Leu
        500   505   510

Asp His Val Lys Lys Leu Glu Arg Glu Lys Arg Leu Glu Asp Ile Val
        515   520   525

Asp Lys Lys Leu Asp Glu Asp Tyr Ile Lys Glu Glu Val Glu Met Met
        530   535   540

Ile Gln Val Ala Leu Leu Cys Thr Gln Ala Ala Pro Glu Glu Arg Pro
545   550   555   560

Ala Met Ser Glu Val Val Arg Met Leu Glu Gly Glu Gly Leu Ala Glu
            565   570   575

Arg Trp Glu Glu Trp Gln Asn Leu Glu Val Thr Arg Gln Glu Glu Phe
            580   585   590

Gln Arg Leu Gln Arg Arg Phe Asp Trp Gly Glu Asp Ser Ile Asn Asn
        595   600   605

Gln Asp Ala Ile Glu Leu Ser Gly Gly Arg
    610   615

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aacaatcaga aattgatctt acaatgtttc atg gcc tta gct ttt gtg gga atc   114
                                           Met Ala Leu Ala Phe Val Gly Ile
                                           1   5

act tcg tca aca act caa cca gat atc gaa gga gga gct ctg ttg cag   162
Thr Ser Ser Thr Thr Gln Pro Asp Ile Glu Gly Gly Ala Leu Leu Gln
       10   15   20

ctc aga gat tcg ctt aat gat tcg agc aat cgt cta aaa tgg aca cgc   210
Leu Arg Asp Ser Leu Asn Asp Ser Ser Asn Arg Leu Lys Trp Thr Arg
25   30   35   40

gat ttt gtg agc cct tgc tat agt tgg tct tat gtt acc tgc aga ggc   258
Asp Phe Val Ser Pro Cys Tyr Ser Trp Ser Tyr Val Thr Cys Arg Gly
              45   50   55

cag agt gtt gtg gct cta aat ctt gcc tcg agt gga ttc aca gga aca   306
Gln Ser Val Val Ala Leu Asn Leu Ala Ser Ser Gly Phe Thr Gly Thr
              60   65   70

ctc tct cca gct att aca aaa ctg aag ttc ttg gtt acc tta gag tta   354
Leu Ser Pro Ala Ile Thr Lys Leu Lys Phe Leu Val Thr Leu Glu Leu
              75   80   85

cag aac aat agt tta tct ggt gcc tta cca gat tct ctt ggg aac atg   402
Gln Asn Asn Ser Leu Ser Gly Ala Leu Pro Asp Ser Leu Gly Asn Met
       90   95   100

gtt aat cta cag act tta aac cta tca gtg aat agt ttc agc gga tcg   450
Val Asn Leu Gln Thr Leu Asn Leu Ser Val Asn Ser Phe Ser Gly Ser
105   110   115   120

ata cca gcg agc tgg agt cag ctc tcg aat cta aag cac ttg gat ctc   498
Ile Pro Ala Ser Trp Ser Gln Leu Ser Asn Leu Lys His Leu Asp Leu
              125   130   135

tca tcc aat aat tta aca gga agc atc cca aca caa ttc ttc tca atc   546
Ser Ser Asn Asn Leu Thr Gly Ser Ile Pro Thr Gln Phe Phe Ser Ile
              140   145   150

cca aca ttc gat ttt tca gga act cag ctt ata tgc ggt aaa agt ttg   594
Pro Thr Phe Asp Phe Ser Gly Thr Gln Leu Ile Cys Gly Lys Ser Leu
              155   160   165

aat cag cct tgt tct tca agt tct cgt ctt cca gtc aca tcc tcc aag   642
Asn Gln Pro Cys Ser Ser Ser Ser Arg Leu Pro Val Thr Ser Ser Lys
       170   175   180

aaa aag ctg aga gac att act ttg act gca agt tgt gtt gct tct ata   690
Lys Lys Leu Arg Asp Ile Thr Leu Thr Ala Ser Cys Val Ala Ser Ile
185   190   195   200

atc tta ttc ctt gga gca atg gtt atg tat cat cac cat cgc gtc cgc   738
Ile Leu Phe Leu Gly Ala Met Val Met Tyr His His His Arg Val Arg
              205   210   215

aga acc aaa tac gac atc ttt ttt gat gta gct ggg gaa gat gac agg   786
Arg Thr Lys Tyr Asp Ile Phe Phe Asp Val Ala Gly Glu Asp Asp Arg
              220   225   230

aag att tcc ttt gga caa cta aaa cga ttc tct tta cgt gaa atc cag   834
Lys Ile Ser Phe Gly Gln Leu Lys Arg Phe Ser Leu Arg Glu Ile Gln
            235   240   245

```
ctc gca aca gat agt ttc aac gag agc aat ttg ata gga caa gga gga      882
Leu Ala Thr Asp Ser Phe Asn Glu Ser Asn Leu Ile Gly Gln Gly Gly
    250                 255                 260

ttt ggt aaa gta tac aga ggt ttg ctt cca gac aaa aca aaa gtt gca      930
Phe Gly Lys Val Tyr Arg Gly Leu Leu Pro Asp Lys Thr Lys Val Ala
265                 270                 275                 280

gtg aaa cgc ctt gcg gat tac ttc agt cct gga gga gaa gct gct ttc      978
Val Lys Arg Leu Ala Asp Tyr Phe Ser Pro Gly Gly Glu Ala Ala Phe
                285                 290                 295

caa aga gag att cag ctc ata agc gtt gcg gtt cat aaa aat ctc tta     1026
Gln Arg Glu Ile Gln Leu Ile Ser Val Ala Val His Lys Asn Leu Leu
                300                 305                 310

cgc ctt att ggc ttc tgc aca act tcc tct gag aga atc ctt gtt tat     1074
Arg Leu Ile Gly Phe Cys Thr Thr Ser Ser Glu Arg Ile Leu Val Tyr
                315                 320                 325

cca tac atg gaa aat ctt agt gtt gca tat cga cta aga gat ttg aaa     1122
Pro Tyr Met Glu Asn Leu Ser Val Ala Tyr Arg Leu Arg Asp Leu Lys
    330                 335                 340

gcg gga gag gaa gga tta gac tgg cca aca agg aag cgt gta gct ttt     1170
Ala Gly Glu Glu Gly Leu Asp Trp Pro Thr Arg Lys Arg Val Ala Phe
345                 350                 355                 360

ggt tca gct cac ggt tta gag tat cta cac gaa cat tgt aac ccg aag     1218
Gly Ser Ala His Gly Leu Glu Tyr Leu His Glu His Cys Asn Pro Lys
                365                 370                 375

atc ata cac cgc gat ctc aag gct gca aac ata ctt tta gac aac aat     1266
Ile Ile His Arg Asp Leu Lys Ala Ala Asn Ile Leu Leu Asp Asn Asn
                380                 385                 390

ttt gag cca gtt ctt gga gat ttc ggt tta gct aag ctt gtg gac aca     1314
Phe Glu Pro Val Leu Gly Asp Phe Gly Leu Ala Lys Leu Val Asp Thr
                395                 400                 405

tct ctg act cat gtc aca act caa gtc cga ggc aca atg ggt cac att     1362
Ser Leu Thr His Val Thr Thr Gln Val Arg Gly Thr Met Gly His Ile
    410                 415                 420

gcg cca gag tat ctc tgc aca gga aaa tca tct gaa aaa acc gat gtt     1410
Ala Pro Glu Tyr Leu Cys Thr Gly Lys Ser Ser Glu Lys Thr Asp Val
425                 430                 435                 440

ttt ggt tac ggt ata acg ctt ctt gag ctt gtt act ggt cag cgc gca     1458
Phe Gly Tyr Gly Ile Thr Leu Leu Glu Leu Val Thr Gly Gln Arg Ala
                445                 450                 455

atc gat ttt tca cgc ttg gaa gaa gag gaa aat att ctc ttg ctt gat     1506
Ile Asp Phe Ser Arg Leu Glu Glu Glu Glu Asn Ile Leu Leu Leu Asp
                460                 465                 470

cat ata aag aag ttg ctt aga gaa cag aga ctt aga gac att gtt gat     1554
His Ile Lys Lys Leu Leu Arg Glu Gln Arg Leu Arg Asp Ile Val Asp
                475                 480                 485

agc aat ttg act aca tat gac tcc aaa gaa gtt gaa aca atc gtt caa     1602
Ser Asn Leu Thr Thr Tyr Asp Ser Lys Glu Val Glu Thr Ile Val Gln
```

```
              490                   495                   500
gtg gct ctt ctc tgc aca caa ggc tca cca gaa gat aga cca gcg atg      1650
Val Ala Leu Leu Cys Thr Gln Gly Ser Pro Glu Asp Arg Pro Ala Met
505                     510                   515                   520

tct gaa gtg gtc aaa atg ctt caa ggg act ggt ggt ttg gct gag aaa      1698
Ser Glu Val Val Lys Met Leu Gln Gly Thr Gly Gly Leu Ala Glu Lys
                        525                   530                   535

tgg act gaa tgg gaa caa ctt gaa gaa gtt agg aac aaa gaa gca ttg      1746
Trp Thr Glu Trp Glu Gln Leu Glu Glu Val Arg Asn Lys Glu Ala Leu
                540                   545                   550

ttg ctt ccg act tta ccg gct act tgg gat gaa gaa gaa acc acc gtt      1794
Leu Leu Pro Thr Leu Pro Ala Thr Trp Asp Glu Glu Glu Thr Thr Val
                555                   560                   565

gat caa gaa tct atc cga tta tcg aca gca aga tga agaagaaaca           1840
Asp Gln Glu Ser Ile Arg Leu Ser Thr Ala Arg
                570                   575

gagagagaaa gatatctatg aaaa                                           1864


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Met Ala Leu Ala Phe Val Gly Ile Thr Ser Ser Thr Thr Gln Pro Asp
1                   5                   10                  15


Ile Glu Gly Gly Ala Leu Leu Gln Leu Arg Asp Ser Leu Asn Asp Ser
                20                  25                  30


Ser Asn Arg Leu Lys Trp Thr Arg Asp Phe Val Ser Pro Cys Tyr Ser
            35                  40                  45


Trp Ser Tyr Val Thr Cys Arg Gly Gln Ser Val Val Ala Leu Asn Leu
        50                  55                  60


Ala Ser Ser Gly Phe Thr Gly Thr Leu Ser Pro Ala Ile Thr Lys Leu
65                  70                  75                  80


Lys Phe Leu Val Thr Leu Glu Leu Gln Asn Asn Ser Leu Ser Gly Ala
                85                  90                  95


Leu Pro Asp Ser Leu Gly Asn Met Val Asn Leu Gln Thr Leu Asn Leu
                100                 105                 110


Ser Val Asn Ser Phe Ser Gly Ser Ile Pro Ala Ser Trp Ser Gln Leu
            115                 120                 125
```

Ser Asn Leu Lys His Leu Asp Leu Ser Ser Asn Asn Leu Thr Gly Ser
    130   135   140

Ile Pro Thr Gln Phe Phe Ser Ile Pro Thr Phe Asp Phe Ser Gly Thr
145   150   155   160

Gln Leu Ile Cys Gly Lys Ser Leu Asn Gln Pro Cys Ser Ser Ser Ser
                165   170   175

Arg Leu Pro Val Thr Ser Ser Lys Lys Lys Leu Arg Asp Ile Thr Leu
                180   185   190

Thr Ala Ser Cys Val Ala Ser Ile Ile Leu Phe Leu Gly Ala Met Val
            195   200   205

Met Tyr His His His Arg Val Arg Arg Thr Lys Tyr Asp Ile Phe Phe
    210   215   220

Asp Val Ala Gly Glu Asp Asp Arg Lys Ile Ser Phe Gly Gln Leu Lys
225   230   235   240

Arg Phe Ser Leu Arg Glu Ile Gln Leu Ala Thr Asp Ser Phe Asn Glu
            245   250   255

Ser Asn Leu Ile Gly Gln Gly Gly Phe Gly Lys Val Tyr Arg Gly Leu
            260   265   270

Leu Pro Asp Lys Thr Lys Val Ala Val Lys Arg Leu Ala Asp Tyr Phe
            275   280   285

Ser Pro Gly Gly Glu Ala Ala Phe Gln Arg Glu Ile Gln Leu Ile Ser
    290   295   300

Val Ala Val His Lys Asn Leu Leu Arg Leu Ile Gly Phe Cys Thr Thr
305   310   315   320

Ser Ser Glu Arg Ile Leu Val Tyr Pro Tyr Met Glu Asn Leu Ser Val
            325   330   335

Ala Tyr Arg Leu Arg Asp Leu Lys Ala Gly Glu Glu Gly Leu Asp Trp
            340   345   350

Pro Thr Arg Lys Arg Val Ala Phe Gly Ser Ala His Gly Leu Glu Tyr
            355   360   365

Leu His Glu His Cys Asn Pro Lys Ile Ile His Arg Asp Leu Lys Ala
    370   375   380

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```
Ala Asn Ile Leu Leu Asp Asn Asn Phe Glu Pro Val Leu Gly Asp Phe
385                 390             395                 400

Gly Leu Ala Lys Leu Val Asp Thr Ser Leu Thr His Val Thr Thr Gln
            405             410             415

Val Arg Gly Thr Met Gly His Ile Ala Pro Glu Tyr Leu Cys Thr Gly
            420             425             430

Lys Ser Ser Glu Lys Thr Asp Val Phe Gly Tyr Gly Ile Thr Leu Leu
        435             440             445

Glu Leu Val Thr Gly Gln Arg Ala Ile Asp Phe Ser Arg Leu Glu Glu
    450             455             460

Glu Glu Asn Ile Leu Leu Leu Asp His Ile Lys Lys Leu Leu Arg Glu
465             470             475             480

Gln Arg Leu Arg Asp Ile Val Asp Ser Asn Leu Thr Thr Tyr Asp Ser
            485             490             495

Lys Glu Val Glu Thr Ile Val Gln Val Ala Leu Leu Cys Thr Gln Gly
            500             505             510

Ser Pro Glu Asp Arg Pro Ala Met Ser Glu Val Val Lys Met Leu Gln
    515             520             525

Gly Thr Gly Gly Leu Ala Glu Lys Trp Thr Glu Trp Glu Gln Leu Glu
    530             535             540

Glu Val Arg Asn Lys Glu Ala Leu Leu Leu Pro Thr Leu Pro Ala Thr
545             550             555             560

Trp Asp Glu Glu Glu Thr Thr Val Asp Gln Glu Ser Ile Arg Leu Ser
            565             570             575

Thr Ala Arg
```

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tcttccttct ccttctggta atctaatcta aagctttttc atg gtg gtg atg aag         54
                                                 Met Val Val Met Lys
                                                 1               5
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```
ata ttc tct gtt ctg tta cta cta tgt ttc ttc gtt act tgt tct ctc        102
Ile Phe Ser Val Leu Leu Leu Leu Cys Phe Phe Val Thr Cys Ser Leu
                10                  15                  20
```

```
tct tct gaa ccc aga aac cct gaa gtg gag gcg ttg ata aac ata aag        150
Ser Ser Glu Pro Arg Asn Pro Glu Val Glu Ala Leu Ile Asn Ile Lys
            25                  30                  35
```

```
aac gag tta cat gat cca cat ggt gtt ttc aaa aac tgg gat gag ttt        198
Asn Glu Leu His Asp Pro His Gly Val Phe Lys Asn Trp Asp Glu Phe
            40                  45                  50
```

```
tct gtt gat cct tgt agc tgg act atg atc tct tgt tct tca gac aac        246
Ser Val Asp Pro Cys Ser Trp Thr Met Ile Ser Cys Ser Ser Asp Asn
        55                  60                  65
```

```
ctc gta att ggc tta gga gct cca agt cag tct ctt tca gga act tta        294
Leu Val Ile Gly Leu Gly Ala Pro Ser Gln Ser Leu Ser Gly Thr Leu
70                  75                  80                  85
```

```
tct ggg tct att gga aat ctc act aat ctt cga caa gtg tca tta cag        342
Ser Gly Ser Ile Gly Asn Leu Thr Asn Leu Arg Gln Val Ser Leu Gln
                90                  95                  100
```

```
aac aat aac atc tcc ggt aaa atc cca ccg gag att tgt tct ctt ccc        390
Asn Asn Asn Ile Ser Gly Lys Ile Pro Pro Glu Ile Cys Ser Leu Pro
                105                 110                 115
```

```
aaa tta cag act ctg gat tta tcc aat aac cgg ttc tcc ggt gaa atc        438
Lys Leu Gln Thr Leu Asp Leu Ser Asn Asn Arg Phe Ser Gly Glu Ile
                120                 125                 130
```

```
ccc ggt tct gtt aac cag ctg agt aat ctc caa tat ctg ttg aac aac        486
Pro Gly Ser Val Asn Gln Leu Ser Asn Leu Gln Tyr Leu Leu Asn Asn
        135                 140                 145
```

```
aac tca tta tct ggg ccc ttt cct gct tct ctg tct caa atc cct cac        534
Asn Ser Leu Ser Gly Pro Phe Pro Ala Ser Leu Ser Gln Ile Pro His
150                 155                 160                 165
```

```
ctc tct ttc tta gac ttg tct tat aac aat ctc aga ggt cct gtt cct        582
Leu Ser Phe Leu Asp Leu Ser Tyr Asn Asn Leu Arg Gly Pro Val Pro
                170                 175                 180
```

```
aaa ttt cct gca agg aca ttc aat gtt gct ggg aac cct ttg att tgt        630
Lys Phe Pro Ala Arg Thr Phe Asn Val Ala Gly Asn Pro Leu Ile Cys
                185                 190                 195
```

```
aaa aac agc cta ccg gag att tgt tca gga tca atc agt gca agc cct        678
Lys Asn Ser Leu Pro Glu Ile Cys Ser Gly Ser Ile Ser Ala Ser Pro
                200                 205                 210
```

```
ctt tct gtc tct tta cgt tct tca tca gga cgt aga acc aac ata tta        726
Leu Ser Val Ser Leu Arg Ser Ser Ser Gly Arg Arg Thr Asn Ile Leu
        215                 220                 225
```

```
gca gtt gca ctt ggt gta agc ctt ggc ttt gct gtt agt gta atc ctc        774
```

```
Ala Val Ala Leu Gly Val Ser Leu Gly Phe Ala Val Ser Val Ile Leu
230             235             240             245

tct ctc ggg ttc att tgg tat cga aag aaa caa aga cgg tta acg atg      822
Ser Leu Gly Phe Ile Trp Tyr Arg Lys Lys Gln Arg Arg Leu Thr Met
                250             255             260

ctt cgc att aac aag caa gag gaa ggg tta ctt ggg ttg gga aat cta      870
Leu Arg Ile Asn Lys Gln Glu Glu Gly Leu Leu Gly Leu Gly Asn Leu
            265             270             275

aga agc ttc aca ttc agg gaa ctt cat gta gct acg gat ggt ttt agt      918
Arg Ser Phe Thr Phe Arg Glu Leu His Val Ala Thr Asp Gly Phe Ser
            280             285             290

tcc aag agt att ctt ggt gct ggt ggg ttt ggt aat gtc tac aga gga      966
Ser Lys Ser Ile Leu Gly Ala Gly Gly Phe Gly Asn Val Tyr Arg Gly
        295             300             305

aaa ttc ggg gat ggg aca gtg gtt gca gtg aaa cga ttg aaa gat gtg     1014
Lys Phe Gly Asp Gly Thr Val Val Ala Val Lys Arg Leu Lys Asp Val
310             315             320             325

aat gga acc tcc ggg aac tca cag ttt cgt act gag ctt gag atg atc     1062
Asn Gly Thr Ser Gly Asn Ser Gln Phe Arg Thr Glu Leu Glu Met Ile
                330             335             340

agc tta gct gtt cat agg aat ttg ctt cgg tta atc ggt tat tgt gcg     1110
Ser Leu Ala Val His Arg Asn Leu Leu Arg Leu Ile Gly Tyr Cys Ala
            345             350             355

agt tct agc gaa aga ctt ctt gtt tac cct tac atg tcc aat ggc agc     1158
Ser Ser Ser Glu Arg Leu Leu Val Tyr Pro Tyr Met Ser Asn Gly Ser
            360             365             370

gtc gcc tct agg ctc aaa gct aag cca gcg ttg gac tgg aac aca agg     1206
Val Ala Ser Arg Leu Lys Ala Lys Pro Ala Leu Asp Trp Asn Thr Arg
        375             380             385

aag aag ata gcg att gga gct gca aga ggg ttg ttt tat cta cac gag     1254
Lys Lys Ile Ala Ile Gly Ala Ala Arg Gly Leu Phe Tyr Leu His Glu
390             395             400             405

caa tgc gat ccc aag att att cac cga gat gtc aag gca gca aac att     1302
Gln Cys Asp Pro Lys Ile Ile His Arg Asp Val Lys Ala Ala Asn Ile
                410             415             420

ctc cta gat gag tat ttt gaa gca gtt gtt ggg gat ttt gga cta gca     1350
Leu Leu Asp Glu Tyr Phe Glu Ala Val Val Gly Asp Phe Gly Leu Ala
                425             430             435

aag cta ctc aac cac gag gat tca cat gtc aca acc gcg gtt aga gga     1398
Lys Leu Leu Asn His Glu Asp Ser His Val Thr Thr Ala Val Arg Gly
            440             445             450

act gtt ggt cac att gca cct gag tat ctc tcc acc ggt cag tca tct     1446
Thr Val Gly His Ile Ala Pro Glu Tyr Leu Ser Thr Gly Gln Ser Ser
        455             460             465

gag aaa acc gat gtc ttt ggg ttc ggt ata ctt ttg cta gag ctc atc     1494
Glu Lys Thr Asp Val Phe Gly Phe Gly Ile Leu Leu Leu Glu Leu Ile
470             475             480             485
```

```
aca gga atg aga gct ctc gag ttt ggc aag tct gtt agc cag aaa gga      1542
Thr Gly Met Arg Ala Leu Glu Phe Gly Lys Ser Val Ser Gln Lys Gly
            490                 495                 500

gct atg cta gaa tgg gtg agg aag cta cac aag gaa atg aaa gta gag      1590
Ala Met Leu Glu Trp Val Arg Lys Leu His Lys Glu Met Lys Val Glu
            505                 510                 515

gag cta gta gac cga gaa ctg ggg aca acc tac gat aga ata gaa gtt      1638
Glu Leu Val Asp Arg Glu Leu Gly Thr Thr Tyr Asp Arg Ile Glu Val
            520                 525                 530

gga gag atg cta caa gtg gca ctg ctc tgc act cag ttt ctt cca gct      1686
Gly Glu Met Leu Gln Val Ala Leu Leu Cys Thr Gln Phe Leu Pro Ala
            535                 540                 545

cac aga ccc aaa atg tct gaa gta gtt cag atg ctt gaa gga gat gga      1734
His Arg Pro Lys Met Ser Glu Val Val Gln Met Leu Glu Gly Asp Gly
550                 555                 560                 565

tta gct gag aga tgg gct gct tca cat gac cat tca cat ttc tac cat      1782
Leu Ala Glu Arg Trp Ala Ala Ser His Asp His Ser His Phe Tyr His
            570                 575                 580

gcc aac atg tct tac agg act att acc tct act gat ggc aac aac caa      1830
Ala Asn Met Ser Tyr Arg Thr Ile Thr Ser Thr Asp Gly Asn Asn Gln
            585                 590                 595

acc aaa cat ctg ttt ggc tcc tca gga ttt gaa gat gaa gat gat aat      1878
Thr Lys His Leu Phe Gly Ser Ser Gly Phe Glu Asp Glu Asp Asp Asn
            600                 605                 610

caa gcg tta gat tca ttc gcc atg gaa cta tct ggt cca agg tag          1923
Gln Ala Leu Asp Ser Phe Ala Met Glu Leu Ser Gly Pro Arg
            615                 620                 625

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<213> Arabidopsis thaliana

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1               5                   10                  15


Val Thr Cys Ser Leu Ser Ser Glu Pro Arg Asn Pro Glu Val Glu Ala
            20                  25                  30


Leu Ile Asn Ile Lys Asn Glu Leu His Asp Pro His Gly Val Phe Lys
            35                  40                  45


Asn Trp Asp Glu Phe Ser Val Asp Pro Cys Ser Trp Thr Met Ile Ser
        50                  55                  60


Cys Ser Ser Asp Asn Leu Val Ile Gly Leu Gly Ala Pro Ser Gln Ser
```

65   70   75   80

Leu Ser Gly Thr Leu Ser Gly Ser Ile Gly Asn Leu Thr Asn Leu Arg
                85   90   95

Gln Val Ser Leu Gln Asn Asn Asn Ile Ser Gly Lys Ile Pro Pro Glu
                100   105   110

Ile Cys Ser Leu Pro Lys Leu Gln Thr Leu Asp Leu Ser Asn Asn Arg
                115   120   125

Phe Ser Gly Glu Ile Pro Gly Ser Val Asn Gln Leu Ser Asn Leu Gln
    130   135   140

Tyr Leu Leu Asn Asn Asn Ser Leu Ser Gly Pro Phe Pro Ala Ser Leu
145   150   155   160

Ser Gln Ile Pro His Leu Ser Phe Leu Asp Leu Ser Tyr Asn Asn Leu
                165   170   175

Arg Gly Pro Val Pro Lys Phe Pro Ala Arg Thr Phe Asn Val Ala Gly
                180   185   190

Asn Pro Leu Ile Cys Lys Asn Ser Leu Pro Glu Ile Cys Ser Gly Ser
                195   200   205

Ile Ser Ala Ser Pro Leu Ser Val Ser Leu Arg Ser Ser Ser Gly Arg
    210   215   220

Arg Thr Asn Ile Leu Ala Val Ala Leu Gly Val Ser Leu Gly Phe Ala
225   230   235   240

Val Ser Val Ile Leu Ser Leu Gly Phe Ile Trp Tyr Arg Lys Lys Gln
                245   250   255

Arg Arg Leu Thr Met Leu Arg Ile Asn Lys Gln Glu Glu Gly Leu Leu
                260   265   270

Gly Leu Gly Asn Leu Arg Ser Phe Thr Phe Arg Glu Leu His Val Ala
                275   280   285

Thr Asp Gly Phe Ser Ser Lys Ser Ile Leu Gly Ala Gly Gly Phe Gly
    290   295   300

Asn Val Tyr Arg Gly Lys Phe Gly Asp Gly Thr Val Val Ala Val Lys
305   310   315   320

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Arg Leu Lys Asp Val Asn Gly Thr Ser Gly Asn Ser Gln Phe Arg Thr
325   330   335

Glu Leu Glu Met Ile Ser Leu Ala Val His Arg Asn Leu Leu Arg Leu
340   345   350

Ile Gly Tyr Cys Ala Ser Ser Ser Glu Arg Leu Leu Val Tyr Pro Tyr
355   360   365

Met Ser Asn Gly Ser Val Ala Ser Arg Leu Lys Ala Lys Pro Ala Leu
370   375   380

Asp Trp Asn Thr Arg Lys Lys Ile Ala Ile Gly Ala Ala Arg Gly Leu
385   390   395   400

Phe Tyr Leu His Glu Gln Cys Asp Pro Lys Ile Ile His Arg Asp Val
405   410   415

Lys Ala Ala Asn Ile Leu Leu Asp Glu Tyr Phe Glu Ala Val Val Gly
420   425   430

Asp Phe Gly Leu Ala Lys Leu Leu Asn His Glu Asp Ser His Val Thr
435   440   445

Thr Ala Val Arg Gly Thr Val Gly His Ile Ala Pro Glu Tyr Leu Ser
450   455   460

Thr Gly Gln Ser Ser Glu Lys Thr Asp Val Phe Gly Phe Gly Ile Leu
465   470   475   480

Leu Leu Glu Leu Ile Thr Gly Met Arg Ala Leu Glu Phe Gly Lys Ser
485   490   495

Val Ser Gln Lys Gly Ala Met Leu Glu Trp Val Arg Lys Leu His Lys
500   505   510

Glu Met Lys Val Glu Glu Leu Val Asp Arg Glu Leu Gly Thr Thr Tyr
515   520   525

Asp Arg Ile Glu Val Gly Glu Met Leu Gln Val Ala Leu Leu Cys Thr
530   535   540

Gln Phe Leu Pro Ala His Arg Pro Lys Met Ser Glu Val Val Gln Met
545   550   555   560

Leu Glu Gly Asp Gly Leu Ala Glu Arg Trp Ala Ala Ser His Asp His
565   570   575

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Ser His Phe Tyr His Ala Asn Met Ser Tyr Arg Thr Ile Thr Ser Thr
            580             585             590


Asp Gly Asn Asn Gln Thr Lys His Leu Phe Gly Ser Ser Gly Phe Glu
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Phe Leu Gly Ile Trp Val Tyr Tyr Tyr Ser Val Leu Asp Ser Val Ser
10              15              20              25


gcc atg gat agt ctt tta tct ccc aag gtg gct gcg tta atg tca gtg          150
Ala Met Asp Ser Leu Leu Ser Pro Lys Val Ala Ala Leu Met Ser Val
                30              35              40


aag aac aag atg aaa gat gag aaa gag gtt ttg tct ggt tgg gat att          198
Lys Asn Lys Met Lys Asp Glu Lys Glu Val Leu Ser Gly Trp Asp Ile
            45              50              55


aac tct gtt gat cct tgt act tgg aac atg gtt ggt tgt tct tct gaa          246
Asn Ser Val Asp Pro Cys Thr Trp Asn Met Val Gly Cys Ser Ser Glu
        60              65              70


ggt ttt gtg gtt tct cta gag atg gct agt aaa gga tta tca ggg ata          294
Gly Phe Val Val Ser Leu Glu Met Ala Ser Lys Gly Leu Ser Gly Ile
    75              80              85


cta tct act agt att ggg gaa tta act cat ctt cat act ttg tta ctt          342
Leu Ser Thr Ser Ile Gly Glu Leu Thr His Leu His Thr Leu Leu Leu
90              95              100             105


cag aat aat cag tta act ggt ccg att cct tct gag tta ggc caa ctc          390
Gln Asn Asn Gln Leu Thr Gly Pro Ile Pro Ser Glu Leu Gly Gln Leu
                110             115             120


tct gag ctt gaa acg ctt gat tta tcg ggg aat cgg ttt agt ggt gaa          438
Ser Glu Leu Glu Thr Leu Asp Leu Ser Gly Asn Arg Phe Ser Gly Glu
            125             130             135
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atc cca gct tct tta ggg ttc tta act cac tta aac tac ttg cgg ctt        486
Ile Pro Ala Ser Leu Gly Phe Leu Thr His Leu Asn Tyr Leu Arg Leu
        140             145             150

agc agg aat ctt tta tct ggg caa gtc cct cac ctc gtc gct ggc ctc        534
Ser Arg Asn Leu Leu Ser Gly Gln Val Pro His Leu Val Ala Gly Leu
        155             160             165

tca ggt ctt tct ttc ttg gat cta tct ttc aac aat cta agc gga cca        582
Ser Gly Leu Ser Phe Leu Asp Leu Ser Phe Asn Asn Leu Ser Gly Pro
170             175             180             185

act ccg aat ata tca gca aaa gat tac agg aaa tgc att tct ttg tgg        630
Thr Pro Asn Ile Ser Ala Lys Asp Tyr Arg Lys Cys Ile Ser Leu Trp
            190             195             200

tcc agc ttc cca aga gct ttg ctc aga tgc tac acc tgt gag aaa tgc        678
Ser Ser Phe Pro Arg Ala Leu Leu Arg Cys Tyr Thr Cys Glu Lys Cys
            205             210             215

tgc aat cga tct gca gcg acg ggt ttg tct gaa aag gac aat agc aaa        726
Cys Asn Arg Ser Ala Ala Thr Gly Leu Ser Glu Lys Asp Asn Ser Lys
        220             225             230

cat cac agc tta gtg ctc tct ttt gca ttt ggc att gtt gtt gcc ttt        774
His His Ser Leu Val Leu Ser Phe Ala Phe Gly Ile Val Val Ala Phe
        235             240             245

atc atc tcc cta atg ttt ctc ttc ttc tgg gtg ctt tgg cat cga tca        822
Ile Ile Ser Leu Met Phe Leu Phe Phe Trp Val Leu Trp His Arg Ser
250             255             260             265

cgt ctc tca aga tca cac gtg cag caa gac tac gaa ttt gaa atc ggc        870
Arg Leu Ser Arg Ser His Val Gln Gln Asp Tyr Glu Phe Glu Ile Gly
            270             275             280

cat ctg aaa agg ttc agt ttt cgc gaa ata caa acc gca aca agc aat        918
His Leu Lys Arg Phe Ser Phe Arg Glu Ile Gln Thr Ala Thr Ser Asn
            285             290             295

ttt agt cca aag aac att ttg gga caa gga ggg ttt ggg atg gtt tat        966
Phe Ser Pro Lys Asn Ile Leu Gly Gln Gly Gly Phe Gly Met Val Tyr
            300             305             310

aaa ggg tat ctc cca aat gga act gtg gtg gca gtt aaa aga ttg aaa       1014
Lys Gly Tyr Leu Pro Asn Gly Thr Val Val Ala Val Lys Arg Leu Lys
        315             320             325

gat ccg att tat aca gga gaa gtt cag ttt caa acc gaa gta gag atg       1062
Asp Pro Ile Tyr Thr Gly Glu Val Gln Phe Gln Thr Glu Val Glu Met
330             335             340             345

att ggc tta gct gtt cac cgt aac ctt tta cgc ctc ttt gga ttc tgt       1110
Ile Gly Leu Ala Val His Arg Asn Leu Leu Arg Leu Phe Gly Phe Cys
            350             355             360

atg acc ccg gaa gag aga atg ctt gtg tat ccg tac atg cca aat gga       1158
Met Thr Pro Glu Glu Arg Met Leu Val Tyr Pro Tyr Met Pro Asn Gly
            365             370             375

agc gta gct gat cgt ctg aga gat tgg aat cgg agg ata agc att gca       1206
Ser Val Ala Asp Arg Leu Arg Asp Trp Asn Arg Arg Ile Ser Ile Ala
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               380   385   390

ctc ggc gca gct cga gga ctt gtt tac ttg cac gag caa tgc aat cca   1254
Leu Gly Ala Ala Arg Gly Leu Val Tyr Leu His Glu Gln Cys Asn Pro
    395   400   405

aag att att cac aga gac gtc aaa gct gca aat att cta ctt gat gag   1302
Lys Ile Ile His Arg Asp Val Lys Ala Ala Asn Ile Leu Leu Asp Glu
410   415   420   425

agc ttt gaa gca ata gtt ggc gat ttt ggt cta gca aag ctt tta gac   1350
Ser Phe Glu Ala Ile Val Gly Asp Phe Gly Leu Ala Lys Leu Leu Asp
                430   435   440

cag aga gat tca cat gtc act acc gca gtc cga gga acc att gga cac   1398
Gln Arg Asp Ser His Val Thr Thr Ala Val Arg Gly Thr Ile Gly His
                445   450   455

atc gct ccc gag tac ctt tcc act gga cag tcc tca gag aaa acc gat   1446
Ile Ala Pro Glu Tyr Leu Ser Thr Gly Gln Ser Ser Glu Lys Thr Asp
            460   465   470

gtt ttc gga ttc gga gta cta atc ctt gaa ctc ata aca ggt cat aag   1494
Val Phe Gly Phe Gly Val Leu Ile Leu Glu Leu Ile Thr Gly His Lys
        475   480   485

atg att gat caa ggc aat ggt caa gtt cga aaa gga atg ata ttg agc   1542
Met Ile Asp Gln Gly Asn Gly Gln Val Arg Lys Gly Met Ile Leu Ser
490   495   500   505

tgg gta agg aca ttg aaa gca gag aag aga ttt gca gag atg gtg gac   1590
Trp Val Arg Thr Leu Lys Ala Glu Lys Arg Phe Ala Glu Met Val Asp
                510   515   520

aga gat ttg aag gga gag ttt gat gat ttg gtg ttg gag gaa gta gtg   1638
Arg Asp Leu Lys Gly Glu Phe Asp Asp Leu Val Leu Glu Glu Val Val
                525   530   535

gaa ttg gct ttg ctt tgt aca cag cca cat ccg aat cta aga ccg agg   1686
Glu Leu Ala Leu Leu Cys Thr Gln Pro His Pro Asn Leu Arg Pro Arg
            540   545   550

atg tct caa gtg ttg aag gta cta gaa ggt tta gtg gaa cag tgt gaa   1734
Met Ser Gln Val Leu Lys Val Leu Glu Gly Leu Val Glu Gln Cys Glu
            555   560   565

gga ggg tat gaa gct aga gct cca agt gtc tct agg aac tac agt aat   1782
Gly Gly Tyr Glu Ala Arg Ala Pro Ser Val Ser Arg Asn Tyr Ser Asn
570   575   580   585

ggt cat gaa gag cag tcc ttt att att gaa gcc att gag ctc tct gga   1830
Gly His Glu Glu Gln Ser Phe Ile Ile Glu Ala Ile Glu Leu Ser Gly
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cca cga tga tagacttcat agtgtcttaa ctagtcttct tgattttgtt   1879
Pro Arg

gtcattgtca tggc   1893

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Tyr Tyr Ser Val Leu Asp Ser Val Ser Ala Met Asp Ser Leu Leu Ser
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Pro Lys Val Ala Ala Leu Met Ser Val Lys Asn Lys Met Lys Asp Glu
        35   40   45

Lys Glu Val Leu Ser Gly Trp Asp Ile Asn Ser Val Asp Pro Cys Thr
    50   55   60

Trp Asn Met Val Gly Cys Ser Ser Glu Gly Phe Val Val Ser Leu Glu
65   70   75   80

Met Ala Ser Lys Gly Leu Ser Gly Ile Leu Ser Thr Ser Ile Gly Glu
                85   90   95

Leu Thr His Leu His Thr Leu Leu Leu Gln Asn Asn Gln Leu Thr Gly
            100   105   110

Pro Ile Pro Ser Glu Leu Gly Gln Leu Ser Glu Leu Glu Thr Leu Asp
        115   120   125

Leu Ser Gly Asn Arg Phe Ser Gly Glu Ile Pro Ala Ser Leu Gly Phe
    130   135   140

Leu Thr His Leu Asn Tyr Leu Arg Leu Ser Arg Asn Leu Leu Ser Gly
145   150   155   160

Gln Val Pro His Leu Val Ala Gly Leu Ser Gly Leu Ser Phe Leu Asp
            165   170   175

Leu Ser Phe Asn Asn Leu Ser Gly Pro Thr Pro Asn Ile Ser Ala Lys
            180   185   190

Asp Tyr Arg Lys Cys Ile Ser Leu Trp Ser Ser Phe Pro Arg Ala Leu
        195   200   205

Leu Arg Cys Tyr Thr Cys Glu Lys Cys Cys Asn Arg Ser Ala Ala Thr
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Gly Leu Ser Glu Lys Asp Asn Ser Lys His His Ser Leu Val Leu Ser
225   230   235   240

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Phe Ala Phe Gly Ile Val Val Ala Phe Ile Ile Ser Leu Met Phe Leu
            245             250             255

Phe Phe Trp Val Leu Trp His Arg Ser Arg Leu Ser Arg Ser His Val
            260             265             270

Gln Gln Asp Tyr Glu Phe Glu Ile Gly His Leu Lys Arg Phe Ser Phe
            275             280             285

Arg Glu Ile Gln Thr Ala Thr Ser Asn Phe Ser Pro Lys Asn Ile Leu
    290             295             300

Gly Gln Gly Gly Phe Gly Met Val Tyr Lys Gly Tyr Leu Pro Asn Gly
305             310             315             320

Thr Val Val Ala Val Lys Arg Leu Lys Asp Pro Ile Tyr Thr Gly Glu
            325             330             335

Val Gln Phe Gln Thr Glu Val Glu Met Ile Gly Leu Ala Val His Arg
            340             345             350

Asn Leu Leu Arg Leu Phe Gly Phe Cys Met Thr Pro Glu Glu Arg Met
            355             360             365

Leu Val Tyr Pro Tyr Met Pro Asn Gly Ser Val Ala Asp Arg Leu Arg
    370             375             380

Asp Trp Asn Arg Arg Ile Ser Ile Ala Leu Gly Ala Ala Arg Gly Leu
385             390             395             400

Val Tyr Leu His Glu Gln Cys Asn Pro Lys Ile Ile His Arg Asp Val
            405             410             415

Lys Ala Ala Asn Ile Leu Leu Asp Glu Ser Phe Glu Ala Ile Val Gly
            420             425             430

Asp Phe Gly Leu Ala Lys Leu Leu Asp Gln Arg Asp Ser His Val Thr
            435             440             445

Thr Ala Val Arg Gly Thr Ile Gly His Ile Ala Pro Glu Tyr Leu Ser
    450             455             460

Thr Gly Gln Ser Ser Glu Lys Thr Asp Val Phe Gly Phe Gly Val Leu
465             470             475             480

Ile Leu Glu Leu Ile Thr Gly His Lys Met Ile Asp Gln Gly Asn Gly
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                485                    490                         495
        Gln Val Arg Lys Gly Met Ile Leu Ser Trp Val Arg Thr Leu Lys Ala
                    500                     505                 510


        Glu Lys Arg Phe Ala Glu Met Val Asp Arg Asp Leu Lys Gly Glu Phe
                    515                     520                 525


        Asp Asp Leu Val Leu Glu Glu Val Val Glu Leu Ala Leu Leu Cys Thr
                530                     535                 540


        Gln Pro His Pro Asn Leu Arg Pro Arg Met Ser Gln Val Leu Lys Val
        545                     550                     555                 560


        Leu Glu Gly Leu Val Glu Gln Cys Glu Gly Gly Tyr Glu Ala Arg Ala
                        565                     570                 575


        Pro Ser Val Ser Arg Asn Tyr Ser Asn Gly His Glu Glu Gln Ser Phe
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        Ile Ile Glu Ala Ile Glu Leu Ser Gly Pro Arg
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Met Arg Met Phe Ser Leu Gln Lys Met Ala Met Ala Phe Thr Leu Leu
1               5                   10                  15

ttt ttt gcc tgt tta tgc tca ttt gtg tct cca gat gct caa ggg gat      156
Phe Phe Ala Cys Leu Cys Ser Phe Val Ser Pro Asp Ala Gln Gly Asp
                20                  25                  30

gca ctg ttt gcg ttg agg atc tcc tta cgt gca tta ccg aat cag cta      204
Ala Leu Phe Ala Leu Arg Ile Ser Leu Arg Ala Leu Pro Asn Gln Leu
            35                  40                  45

agt gac tgg aat cag aac caa gtt aat cct tgc act tgg tcc caa gtt      252
Ser Asp Trp Asn Gln Asn Gln Val Asn Pro Cys Thr Trp Ser Gln Val
        50                  55                  60

att tgt gat gac aaa aac ttt gtc act tct ctt aca ttg tca gat atg      300
Ile Cys Asp Asp Lys Asn Phe Val Thr Ser Leu Thr Leu Ser Asp Met
65                  70                  75                  80
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aac ttc tcg gga acc ttg tct tca aga gta gga atc cta gaa aat ctc    348
Asn Phe Ser Gly Thr Leu Ser Ser Arg Val Gly Ile Leu Glu Asn Leu
                85              90              95

aag act ctt act tta aag gga aat gga att acg ggt gaa ata cca gaa    396
Lys Thr Leu Thr Leu Lys Gly Asn Gly Ile Thr Gly Glu Ile Pro Glu
            100             105             110

gac ttt gga aat ctg act agc ttg act agt ttg gat ttg gag gac aat    444
Asp Phe Gly Asn Leu Thr Ser Leu Thr Ser Leu Asp Leu Glu Asp Asn
            115             120             125

cag cta act ggt cgt ata cca tcc act atc ggt aat ctc aag aaa ctt    492
Gln Leu Thr Gly Arg Ile Pro Ser Thr Ile Gly Asn Leu Lys Lys Leu
    130             135             140

cag ttc ttg acc ttg agt agg aac aaa ctt aat ggg act att ccg gag    540
Gln Phe Leu Thr Leu Ser Arg Asn Lys Leu Asn Gly Thr Ile Pro Glu
145             150             155             160

tca ctc act ggt ctt cca aac ctg tta aac ctg ctg ctt gat tcc aat    588
Ser Leu Thr Gly Leu Pro Asn Leu Leu Asn Leu Leu Leu Asp Ser Asn
                165             170             175

agt ctc agt ggt cag att cct caa agt ctg ttt gag atc cca aaa tat    636
Ser Leu Ser Gly Gln Ile Pro Gln Ser Leu Phe Glu Ile Pro Lys Tyr
            180             185             190

aat ttc acg tca aac aac ttg aat tgt ggc ggt cgt caa cct cac cct    684
Asn Phe Thr Ser Asn Asn Leu Asn Cys Gly Gly Arg Gln Pro His Pro
            195             200             205

tgt gta tcc gcg gtt gcc cat tca ggt gat tca agc aag cct aaa act    732
Cys Val Ser Ala Val Ala His Ser Gly Asp Ser Ser Lys Pro Lys Thr
    210             215             220

ggc att att gct gga gtt gtt gct gga gtt aca gtt gtt ctc ttt gga    780
Gly Ile Ile Ala Gly Val Val Ala Gly Val Thr Val Val Leu Phe Gly
225             230             235             240

atc ttg ttg ttt ctg ttc tgc aag gat agg cat aaa gga tat aga cgt    828
Ile Leu Leu Phe Leu Phe Cys Lys Asp Arg His Lys Gly Tyr Arg Arg
            245             250             255

gat gtg ttt gtg gat gtt gca ggt gaa gtg gac agg aga att gca ttt    876
Asp Val Phe Val Asp Val Ala Gly Glu Val Asp Arg Arg Ile Ala Phe
            260             265             270

gga cag ttg aaa agg ttt gca tgg aga gag ctc cag tta gcg aca gat    924
Gly Gln Leu Lys Arg Phe Ala Trp Arg Glu Leu Gln Leu Ala Thr Asp
            275             280             285

aac ttc agc gaa aag aat gta ctt ggt caa gga ggc ttt ggg aaa gtt    972
Asn Phe Ser Glu Lys Asn Val Leu Gly Gln Gly Gly Phe Gly Lys Val
            290             295             300

tac aaa gga gtg ctt ccg gat aca ccc aaa gtt gct gtg aag aga ttg    1020
Tyr Lys Gly Val Leu Pro Asp Thr Pro Lys Val Ala Val Lys Arg Leu
305             310             315             320

acg gat ttc gaa agt cct ggt gga gat gct gct ttc caa agg gaa gta    1068
Thr Asp Phe Glu Ser Pro Gly Gly Asp Ala Ala Phe Gln Arg Glu Val
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gag atg ata agt gta gct gtt cat agg aat cta ctc cgt ctt atc ggg   1116
Glu Met Ile Ser Val Ala Val His Arg Asn Leu Leu Arg Leu Ile Gly
        340   345   350

ttc tgc acc aca caa aca gaa cgc ctt ttg gtt tat ccc ttc atg cag   1164
Phe Cys Thr Thr Gln Thr Glu Arg Leu Leu Val Tyr Pro Phe Met Gln
        355   360   365

aat cta agt ctt gca cat cgt ctg aga gag atc aaa gca ggc gac ccg   1212
Asn Leu Ser Leu Ala His Arg Leu Arg Glu Ile Lys Ala Gly Asp Pro
        370   375   380

gtt cta gat tgg gag acg agg aaa cgg att gcc tta gga gca gcg cgt   1260
Val Leu Asp Trp Glu Thr Arg Lys Arg Ile Ala Leu Gly Ala Ala Arg
385   390   395   400

ggt ttt gag tat ctt cat gaa cat tgc aat ccg aag atc ata cat cgt   1308
Gly Phe Glu Tyr Leu His Glu His Cys Asn Pro Lys Ile Ile His Arg
                405   410   415

gat gtg aaa gca gct aat gtg tta cta gat gaa gat ttt gaa gca gtg   1356
Asp Val Lys Ala Ala Asn Val Leu Leu Asp Glu Asp Phe Glu Ala Val
                420   425   430

gtt ggt gat ttt ggt tta gcc aag cta gta gat gtt aga agg act aat   1404
Val Gly Asp Phe Gly Leu Ala Lys Leu Val Asp Val Arg Arg Thr Asn
            435   440   445

gtg act act caa gtt cga gga aca atg ggt cac att gca cca gaa tat   1452
Val Thr Thr Gln Val Arg Gly Thr Met Gly His Ile Ala Pro Glu Tyr
        450   455   460

tta tca aca ggg aaa tca tca gag aga acc gat gtt ttc ggg tat gga   1500
Leu Ser Thr Gly Lys Ser Ser Glu Arg Thr Asp Val Phe Gly Tyr Gly
465   470   475   480

att atg ctt ctt gag ctt gtt aca gga caa cgc gca ata gac ttt tca   1548
Ile Met Leu Leu Glu Leu Val Thr Gly Gln Arg Ala Ile Asp Phe Ser
                485   490   495

cgt ttg gag gaa gaa gat gat gtc ttg tta ctt gac cac gtg aag aaa   1596
Arg Leu Glu Glu Glu Asp Asp Val Leu Leu Leu Asp His Val Lys Lys
                500   505   510

ctg gaa aga gag aag aga tta gga gca atc gta gat aag aat ttg gat   1644
Leu Glu Arg Glu Lys Arg Leu Gly Ala Ile Val Asp Lys Asn Leu Asp
                515   520   525

gga gag tat ata aaa gaa gaa gta gag atg atg ata caa gtg gct ttg   1692
Gly Glu Tyr Ile Lys Glu Glu Val Glu Met Met Ile Gln Val Ala Leu
        530   535   540

ctt tgt aca caa ggt tca cca gaa gac cga cca gtg atg tct gaa gtt   1740
Leu Cys Thr Gln Gly Ser Pro Glu Asp Arg Pro Val Met Ser Glu Val
545   550   555   560

gtg agg atg tta gaa gga gaa ggg ctt gcg gag aga tgg gaa gag tgg   1788
Val Arg Met Leu Glu Gly Glu Gly Leu Ala Glu Arg Trp Glu Glu Trp
                565   570   575

caa aac gtg gaa gtc acg aga cgt cat gag ttt gaa cgg ttg cag agg   1836

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Gln Asn Val Glu Val Thr Arg Arg His Glu Phe Glu Arg Leu Gln Arg
        580             585             590

aga ttt gat tgg ggt gaa gat tct atg cat aac caa gat gcc att gaa      1884
Arg Phe Asp Trp Gly Glu Asp Ser Met His Asn Gln Asp Ala Ile Glu
        595             600             605

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Ala Leu Phe Ala Leu Arg Ile Ser Leu Arg Ala Leu Pro Asn Gln Leu
        35              40              45

Ser Asp Trp Asn Gln Asn Gln Val Asn Pro Cys Thr Trp Ser Gln Val
    50              55              60

Ile Cys Asp Asp Lys Asn Phe Val Thr Ser Leu Thr Leu Ser Asp Met
65              70              75              80

Asn Phe Ser Gly Thr Leu Ser Ser Arg Val Gly Ile Leu Glu Asn Leu
            85              90              95

Lys Thr Leu Thr Leu Lys Gly Asn Gly Ile Thr Gly Glu Ile Pro Glu
            100             105             110

Asp Phe Gly Asn Leu Thr Ser Leu Thr Ser Leu Asp Leu Glu Asp Asn
        115             120             125

Gln Leu Thr Gly Arg Ile Pro Ser Thr Ile Gly Asn Leu Lys Lys Leu
    130             135             140

Gln Phe Leu Thr Leu Ser Arg Asn Lys Leu Asn Gly Thr Ile Pro Glu
145             150             155             160

Ser Leu Thr Gly Leu Pro Asn Leu Leu Asn Leu Leu Leu Asp Ser Asn
            165             170             175
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Ser Leu Ser Gly Gln Ile Pro Gln Ser Leu Phe Glu Ile Pro Lys Tyr
          180   185   190

Asn Phe Thr Ser Asn Asn Leu Asn Cys Gly Gly Arg Gln Pro His Pro
          195   200   205

Cys Val Ser Ala Val Ala His Ser Gly Asp Ser Ser Lys Pro Lys Thr
    210   215   220

Gly Ile Ile Ala Gly Val Val Ala Gly Val Thr Val Val Leu Phe Gly
225   230   235   240

Ile Leu Leu Phe Leu Phe Cys Lys Asp Arg His Lys Gly Tyr Arg Arg
          245   250   255

Asp Val Phe Val Asp Val Ala Gly Glu Val Asp Arg Arg Ile Ala Phe
          260   265   270

Gly Gln Leu Lys Arg Phe Ala Trp Arg Glu Leu Gln Leu Ala Thr Asp
          275   280   285

Asn Phe Ser Glu Lys Asn Val Leu Gly Gln Gly Gly Phe Gly Lys Val
          290   295   300

Tyr Lys Gly Val Leu Pro Asp Thr Pro Lys Val Ala Val Lys Arg Leu
305   310   315   320

Thr Asp Phe Glu Ser Pro Gly Gly Asp Ala Ala Phe Gln Arg Glu Val
          325   330   335

Glu Met Ile Ser Val Ala Val His Arg Asn Leu Leu Arg Leu Ile Gly
          340   345   350

Phe Cys Thr Thr Gln Thr Glu Arg Leu Leu Val Tyr Pro Phe Met Gln
          355   360   365

Asn Leu Ser Leu Ala His Arg Leu Arg Glu Ile Lys Ala Gly Asp Pro
          370   375   380

Val Leu Asp Trp Glu Thr Arg Lys Arg Ile Ala Leu Gly Ala Ala Arg
385   390   395   400

Gly Phe Glu Tyr Leu His Glu His Cys Asn Pro Lys Ile Ile His Arg
              405   410   415

Asp Val Lys Ala Ala Asn Val Leu Leu Asp Glu Asp Phe Glu Ala Val
          420   425   430

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Val Gly Asp Phe Gly Leu Ala Lys Leu Val Asp Val Arg Arg Thr Asn
        435                 440             445

Val Thr Thr Gln Val Arg Gly Thr Met Gly His Ile Ala Pro Glu Tyr
    450                 455             460

Leu Ser Thr Gly Lys Ser Ser Glu Arg Thr Asp Val Phe Gly Tyr Gly
465                 470             475                 480

Ile Met Leu Leu Glu Leu Val Thr Gly Gln Arg Ala Ile Asp Phe Ser
            485                 490             495

Arg Leu Glu Glu Glu Asp Asp Val Leu Leu Leu Asp His Val Lys Lys
            500             505             510

Leu Glu Arg Glu Lys Arg Leu Gly Ala Ile Val Asp Lys Asn Leu Asp
            515             520             525

Gly Glu Tyr Ile Lys Glu Glu Val Glu Met Met Ile Gln Val Ala Leu
    530             535             540

Leu Cys Thr Gln Gly Ser Pro Glu Asp Arg Pro Val Met Ser Glu Val
545                 550             555                 560

Val Arg Met Leu Glu Gly Glu Gly Leu Ala Glu Arg Trp Glu Glu Trp
            565             570             575

Gln Asn Val Glu Val Thr Arg Arg His Glu Phe Glu Arg Leu Gln Arg
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Met Met Met Met Ile Thr Arg Ser Phe Phe Cys Phe Leu Gly Phe Leu
            10              15              20

tgc ctt ctc tgc tct tct gtt cac gga ttg ctt tct cct aaa ggt gtt     149
Cys Leu Leu Cys Ser Ser Val His Gly Leu Leu Ser Pro Lys Gly Val
        25              30              35

aac ttt gaa gtg caa gct ttg atg gac ata aaa gct tca tta cat gat     197
Asn Phe Glu Val Gln Ala Leu Met Asp Ile Lys Ala Ser Leu His Asp
    40              45              50

cct cat ggt gtt ctt gat aac tgg gat aga gat gct gtt gat cct tgt     245
Pro His Gly Val Leu Asp Asn Trp Asp Arg Asp Ala Val Asp Pro Cys
55              60              65              70

agt tgg aca atg gtc act tgt tct tct gaa aac ttt gtc att ggc tta     293
Ser Trp Thr Met Val Thr Cys Ser Ser Glu Asn Phe Val Ile Gly Leu
            75              80              85

ggc aca cca agt cag aat tta tct ggt aca cta tct cca agc att acc     341
Gly Thr Pro Ser Gln Asn Leu Ser Gly Thr Leu Ser Pro Ser Ile Thr
            90              95              100

aac tta aca aat ctt cgg att gtg ctg ttg cag aac aac aac ata aaa     389
Asn Leu Thr Asn Leu Arg Ile Val Leu Leu Gln Asn Asn Asn Ile Lys
        105             110             115

gga aaa att cct gct gag att ggt cgg ctt acg agg ctt gag act ctt     437
Gly Lys Ile Pro Ala Glu Ile Gly Arg Leu Thr Arg Leu Glu Thr Leu
        120             125             130

gat ctt tct gat aat ttc ttc cac ggt gaa att cct ttt tca gta ggc     485
Asp Leu Ser Asp Asn Phe Phe His Gly Glu Ile Pro Phe Ser Val Gly
135             140             145             150

tat cta caa agc ctg caa tat ctg agg ctt aac aac aat tct ctc tct     533
Tyr Leu Gln Ser Leu Gln Tyr Leu Arg Leu Asn Asn Asn Ser Leu Ser
            155             160             165

gga gtg ttt cct ctg tca cta tct aat atg act caa ctt gcc ttt ctt     581
Gly Val Phe Pro Leu Ser Leu Ser Asn Met Thr Gln Leu Ala Phe Leu
            170             175             180

gat tta tca tac aac aat ctt agt ggt cct gtt cca aga ttt gct gca     629
Asp Leu Ser Tyr Asn Asn Leu Ser Gly Pro Val Pro Arg Phe Ala Ala
            185             190             195

aag acg ttt agc atc gtt ggg aac ccg ctg ata tgt cca acg ggt acc     677
Lys Thr Phe Ser Ile Val Gly Asn Pro Leu Ile Cys Pro Thr Gly Thr
        200             205             210

gaa cca gac tgc aat gga aca aca ttg ata cct atg tct atg aac ttg     725
Glu Pro Asp Cys Asn Gly Thr Thr Leu Ile Pro Met Ser Met Asn Leu
215             220             225             230

aat caa act gga gtt cct tta tac gcc ggt gga tcg agg aat cac aaa     773
Asn Gln Thr Gly Val Pro Leu Tyr Ala Gly Gly Ser Arg Asn His Lys
            235             240             245

atg gca atc gct gtt gga tcc agc gtt ggg act gta tca tta atc ttc     821
Met Ala Ile Ala Val Gly Ser Ser Val Gly Thr Val Ser Leu Ile Phe
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                250   255   260

att gct gtt ggt ttg ttt ctc tgg tgg aga caa aga cat aac caa aac   869
Ile Ala Val Gly Leu Phe Leu Trp Trp Arg Gln Arg His Asn Gln Asn
        265   270   275

aca ttc ttt gat gtt aaa gat ggg aat cat cat gag gaa gtt tca ctt   917
Thr Phe Phe Asp Val Lys Asp Gly Asn His His Glu Glu Val Ser Leu
        280   285   290

gga aac ctg agg aga ttt ggt ttc agg gag ctt cag att gcg acc aat   965
Gly Asn Leu Arg Arg Phe Gly Phe Arg Glu Leu Gln Ile Ala Thr Asn
295   300   305   310

aac ttc agc agt aag aac tta ttg ggg aaa ggt ggc tat gga aat gta   1013
Asn Phe Ser Ser Lys Asn Leu Leu Gly Lys Gly Gly Tyr Gly Asn Val
                315   320   325

tac aaa gga ata ctt gga gat agt aca gtg gtt gca gtg aaa agg ctt   1061
Tyr Lys Gly Ile Leu Gly Asp Ser Thr Val Val Ala Val Lys Arg Leu
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aaa gat gga gga gca ttg gga gga gag att cag ttt cag aca gaa gtt   1109
Lys Asp Gly Gly Ala Leu Gly Gly Glu Ile Gln Phe Gln Thr Glu Val
        345   350   355

gaa atg atc agt tta gct gtt cat cga aat ctc tta aga ctc tac ggt   1157
Glu Met Ile Ser Leu Ala Val His Arg Asn Leu Leu Arg Leu Tyr Gly
        360   365   370

ttc tgc atc aca caa act gag aag ctt cta gtt tat cct tat atg tct   1205
Phe Cys Ile Thr Gln Thr Glu Lys Leu Leu Val Tyr Pro Tyr Met Ser
375   380   385   390

aat gga agc gtt gca tct cga atg aaa gca aaa cct gtt ctt gac tgg   1253
Asn Gly Ser Val Ala Ser Arg Met Lys Ala Lys Pro Val Leu Asp Trp
                395   400   405

agc ata agg aag agg ata gcc ata gga gct gca aga ggg ctt gtg tat   1301
Ser Ile Arg Lys Arg Ile Ala Ile Gly Ala Ala Arg Gly Leu Val Tyr
                410   415   420

ctc cat gag caa tgt gat ccg aag att atc cac cgc gat gtc aaa gca   1349
Leu His Glu Gln Cys Asp Pro Lys Ile Ile His Arg Asp Val Lys Ala
                425   430   435

gcg aat ata ctt ctt gat gac tac tgt gaa gct gtg gtt ggc gat ttt   1397
Ala Asn Ile Leu Leu Asp Asp Tyr Cys Glu Ala Val Val Gly Asp Phe
        440   445   450

ggt tta gct aaa ctc ttg gat cat caa gat tct cat gtg aca acc gcg   1445
Gly Leu Ala Lys Leu Leu Asp His Gln Asp Ser His Val Thr Thr Ala
455   460   465   470

gtt aga ggc acg gtg ggt cac att gct cca gag tat ctc tca act ggt   1493
Val Arg Gly Thr Val Gly His Ile Ala Pro Glu Tyr Leu Ser Thr Gly
                475   480   485

caa tcc tct gag aaa aca gat gtt ttt ggc ttc ggg att ctt ctt ctt   1541
Gln Ser Ser Glu Lys Thr Asp Val Phe Gly Phe Gly Ile Leu Leu Leu
                490   495   500

gag ctt gta acc gga caa aga gct ttt gag ttt ggt aaa gcg gct aac   1589

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Glu Leu Val Thr Gly Gln Arg Ala Phe Glu Phe Gly Lys Ala Ala Asn
        505                 510             515

cag aaa ggt gtg atg ctt gat tgg gtt aaa aag att cat caa gag aag    1637
Gln Lys Gly Val Met Leu Asp Trp Val Lys Lys Ile His Gln Glu Lys
        520                 525             530

aaa ctt gag cta ctt gtg gat aaa gag ttg ttg aag aag aag agc tac    1685
Lys Leu Glu Leu Leu Val Asp Lys Glu Leu Leu Lys Lys Lys Ser Tyr
535                 540                 545                 550

gat gag att gag tta gac gaa atg gta aga gta gct ttg ttg tgc aca    1733
Asp Glu Ile Glu Leu Asp Glu Met Val Arg Val Ala Leu Leu Cys Thr
            555                 560                 565

cag tac ctg cca gga cat aga cca aaa atg tct gaa gtt gtt cga atg    1781
Gln Tyr Leu Pro Gly His Arg Pro Lys Met Ser Glu Val Val Arg Met
            570                 575                 580

ctg gaa gga gat gga ctt gca gag aaa tgg gaa gct tct caa aga tca    1829
Leu Glu Gly Asp Gly Leu Ala Glu Lys Trp Glu Ala Ser Gln Arg Ser
        585                 590                 595

gac agt gtt tca aaa tgt agc aac agg ata aat gaa ttg atg tca tct    1877
Asp Ser Val Ser Lys Cys Ser Asn Arg Ile Asn Glu Leu Met Ser Ser
        600                 605                 610

tca gac aga tac tct gat ctt acc gat gac tct agt tta ctt gtg caa    1925
Ser Asp Arg Tyr Ser Asp Leu Thr Asp Asp Ser Ser Leu Leu Val Gln
615                 620                 625                 630

gca atg gag ctc tct ggt cct aga tga aatctataca tgaatctgaa          1972
Ala Met Glu Leu Ser Gly Pro Arg
                635

gaagaagaag aacatgcatc tgtttcttga atcaagaggg attcttgttt ttttgtataa  2032

tagagaggtt ttttggaggg aaatgttgtg tctctgtaac tgtataggct tgttgtgtaa  2092

gaagttatta ctgcacttag ggttaattca aagttcttta cataaaaaat gattagttgc  2152

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Cys Phe Leu Gly Phe Leu Cys Leu Leu Cys Ser Ser Val His Gly Leu
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Leu Ser Pro Lys Gly Val Asn Phe Glu Val Gln Ala Leu Met Asp Ile
        35              40                  45
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Lys Ala Ser Leu His Asp Pro His Gly Val Leu Asp Asn Trp Asp Arg
    50   55   60

Asp Ala Val Asp Pro Cys Ser Trp Thr Met Val Thr Cys Ser Ser Glu
65   70   75   80

Asn Phe Val Ile Gly Leu Gly Thr Pro Ser Gln Asn Leu Ser Gly Thr
                85   90   95

Leu Ser Pro Ser Ile Thr Asn Leu Thr Asn Leu Arg Ile Val Leu Leu
            100   105   110

Gln Asn Asn Asn Ile Lys Gly Lys Ile Pro Ala Glu Ile Gly Arg Leu
        115   120   125

Thr Arg Leu Glu Thr Leu Asp Leu Ser Asp Asn Phe Phe His Gly Glu
    130   135   140

Ile Pro Phe Ser Val Gly Tyr Leu Gln Ser Leu Gln Tyr Leu Arg Leu
145   150   155   160

Asn Asn Asn Ser Leu Ser Gly Val Phe Pro Leu Ser Leu Ser Asn Met
                165   170   175

Thr Gln Leu Ala Phe Leu Asp Leu Ser Tyr Asn Asn Leu Ser Gly Pro
            180   185   190

Val Pro Arg Phe Ala Ala Lys Thr Phe Ser Ile Val Gly Asn Pro Leu
        195   200   205

Ile Cys Pro Thr Gly Thr Glu Pro Asp Cys Asn Gly Thr Thr Leu Ile
    210   215   220

Pro Met Ser Met Asn Leu Asn Gln Thr Gly Val Pro Leu Tyr Ala Gly
225   230   235   240

Gly Ser Arg Asn His Lys Met Ala Ile Ala Val Gly Ser Ser Val Gly
                245   250   255

Thr Val Ser Leu Ile Phe Ile Ala Val Gly Leu Phe Leu Trp Trp Arg
            260   265   270

Gln Arg His Asn Gln Asn Thr Phe Phe Asp Val Lys Asp Gly Asn His
    275   280   285

His Glu Glu Val Ser Leu Gly Asn Leu Arg Arg Phe Gly Phe Arg Glu
                              Page 83

                290   295   300

Leu Gln Ile Ala Thr Asn Asn Phe Ser Ser Lys Asn Leu Leu Gly Lys
305   310   315   320

Gly Gly Tyr Gly Asn Val Tyr Lys Gly Ile Leu Gly Asp Ser Thr Val
                325   330   335

Val Ala Val Lys Arg Leu Lys Asp Gly Gly Ala Leu Gly Gly Glu Ile
                340   345   350

Gln Phe Gln Thr Glu Val Glu Met Ile Ser Leu Ala Val His Arg Asn
                355   360   365

Leu Leu Arg Leu Tyr Gly Phe Cys Ile Thr Gln Thr Glu Lys Leu Leu
                370   375   380

Val Tyr Pro Tyr Met Ser Asn Gly Ser Val Ala Ser Arg Met Lys Ala
385   390   395   400

Lys Pro Val Leu Asp Trp Ser Ile Arg Lys Arg Ile Ala Ile Gly Ala
                405   410   415

Ala Arg Gly Leu Val Tyr Leu His Glu Gln Cys Asp Pro Lys Ile Ile
                420   425   430

His Arg Asp Val Lys Ala Ala Asn Ile Leu Leu Asp Asp Tyr Cys Glu
                435   440   445

Ala Val Val Gly Asp Phe Gly Leu Ala Lys Leu Leu Asp His Gln Asp
                450   455   460

Ser His Val Thr Thr Ala Val Arg Gly Thr Val Gly His Ile Ala Pro
465   470   475   480

Glu Tyr Leu Ser Thr Gly Gln Ser Ser Glu Lys Thr Asp Val Phe Gly
                485   490   495

Phe Gly Ile Leu Leu Leu Glu Leu Val Thr Gly Gln Arg Ala Phe Glu
                500   505   510

Phe Gly Lys Ala Ala Asn Gln Lys Gly Val Met Leu Asp Trp Val Lys
                515   520   525

Lys Ile His Gln Glu Lys Lys Leu Glu Leu Leu Val Asp Lys Glu Leu
                530   535   540

Leu Lys Lys Lys Ser Tyr Asp Glu Ile Glu Leu Asp Glu Met Val Arg
545   550   555   560

Val Ala Leu Leu Cys Thr Gln Tyr Leu Pro Gly His Arg Pro Lys Met
                565   570   575

Ser Glu Val Val Arg Met Leu Glu Gly Asp Gly Leu Ala Glu Lys Trp
            580   585   590

Glu Ala Ser Gln Arg Ser Asp Ser Val Ser Lys Cys Ser Asn Arg Ile
        595   600   605

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Met Gly Arg Lys Lys Phe Glu Ala Phe Gly Phe Val Cys Leu Ile Ser
1   5   10   15

ctg ctt ctt ctg ttt aat tcg tta tgg ctt gcc tct tct aac atg gaa   156
Leu Leu Leu Leu Phe Asn Ser Leu Trp Leu Ala Ser Ser Asn Met Glu
            20   25   30

ggt gat gca ctg cac agt ttg aga gct aat cta gtt gat cca aat aat   204
Gly Asp Ala Leu His Ser Leu Arg Ala Asn Leu Val Asp Pro Asn Asn
        35   40   45

gtc ttg caa agc tgg gat cct acg ctt gtt aat ccg tgt act tgg ttt   252
Val Leu Gln Ser Trp Asp Pro Thr Leu Val Asn Pro Cys Thr Trp Phe
    50   55   60

cac gta acg tgt aac aac gag aac agt gtt ata aga gtc gat ctt ggg   300
His Val Thr Cys Asn Asn Glu Asn Ser Val Ile Arg Val Asp Leu Gly
65   70   75   80

aat gca gac ttg tct ggt cag ttg gtt cct cag cta ggt cag ctc aag   348
Asn Ala Asp Leu Ser Gly Gln Leu Val Pro Gln Leu Gly Gln Leu Lys
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aac ttg cag tac ttg gag ctt tat agt aat aac ata acc ggg ccg gtt   396
Asn Leu Gln Tyr Leu Glu Leu Tyr Ser Asn Asn Ile Thr Gly Pro Val

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                100                    105                    110
cca agc gat ctt ggg aat ctg aca aac tta gtg agc ttg gat ctt tac      444
Pro Ser Asp Leu Gly Asn Leu Thr Asn Leu Val Ser Leu Asp Leu Tyr
        115                    120                    125

ttg aac agc ttc act ggt cca att cca gat tct cta gga aag cta ttc      492
Leu Asn Ser Phe Thr Gly Pro Ile Pro Asp Ser Leu Gly Lys Leu Phe
    130                    135                    140

aag ctt cgc ttt ctt cgg ctc aac aat aac agt ctc acc gga cca att      540
Lys Leu Arg Phe Leu Arg Leu Asn Asn Asn Ser Leu Thr Gly Pro Ile
145                    150                    155                    160

ccc atg tca ttg act aat atc atg acc ctt caa gtt ttg gat ctg tcg      588
Pro Met Ser Leu Thr Asn Ile Met Thr Leu Gln Val Leu Asp Leu Ser
                165                    170                    175

aac aac cga tta tcc gga tct gtt cct gat aat ggt tcc ttc tcg ctc      636
Asn Asn Arg Leu Ser Gly Ser Val Pro Asp Asn Gly Ser Phe Ser Leu
            180                    185                    190

ttc act ccc atc agt ttt gct aac aac ttg gat cta tgc ggc cca gtt      684
Phe Thr Pro Ile Ser Phe Ala Asn Asn Leu Asp Leu Cys Gly Pro Val
        195                    200                    205

act agc cgt cct tgt cct gga tct ccc ccg ttt tct cct cca cca cct      732
Thr Ser Arg Pro Cys Pro Gly Ser Pro Pro Phe Ser Pro Pro Pro Pro
    210                    215                    220

ttt ata cca cct ccc ata gtt cct aca cca ggt ggg tat agt gct act      780
Phe Ile Pro Pro Pro Ile Val Pro Thr Pro Gly Gly Tyr Ser Ala Thr
225                    230                    235                    240

gga gcc att gcg gga gga gtt gct gct ggt gct gct tta cta ttt gct      828
Gly Ala Ile Ala Gly Gly Val Ala Ala Gly Ala Ala Leu Leu Phe Ala
                245                    250                    255

gcc cct gct tta gct ttt gct tgg tgg cgt aga aga aaa cct caa gaa      876
Ala Pro Ala Leu Ala Phe Ala Trp Trp Arg Arg Arg Lys Pro Gln Glu
            260                    265                    270

ttc ttc ttt gat gtt cct gcc gaa gag gac cct gag gtt cac ttg ggg      924
Phe Phe Phe Asp Val Pro Ala Glu Glu Asp Pro Glu Val His Leu Gly
        275                    280                    285

cag ctt aag cgg ttc tct cta cgg gaa ctt caa gta gca act gat agc      972
Gln Leu Lys Arg Phe Ser Leu Arg Glu Leu Gln Val Ala Thr Asp Ser
    290                    295                    300

ttc agc aac aag aac att ttg ggc cga ggt ggg ttc gga aaa gtc tac      1020
Phe Ser Asn Lys Asn Ile Leu Gly Arg Gly Gly Phe Gly Lys Val Tyr
305                    310                    315                    320

aaa ggc cgt ctt gct gat gga aca ctt gtt gca gtc aaa cgg ctt aaa      1068
Lys Gly Arg Leu Ala Asp Gly Thr Leu Val Ala Val Lys Arg Leu Lys
                325                    330                    335

gaa gag cga acc cca ggt ggc gag ctc cag ttt cag aca gaa gtg gag      1116
Glu Glu Arg Thr Pro Gly Gly Glu Leu Gln Phe Gln Thr Glu Val Glu
            340                    345                    350

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Met Ile Ser Met Ala Val His Arg Asn Leu Leu Arg Leu Arg Gly Phe
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Cys Met Thr Pro Thr Glu Arg Leu Leu Val Tyr Pro Tyr Met Ala Asn
        370                 375                 380

gga agt gtc gct tcc tgt ttg aga gaa cgt cca cca tca cag ttg cct      1260
Gly Ser Val Ala Ser Cys Leu Arg Glu Arg Pro Pro Ser Gln Leu Pro
385                 390                 395                 400

cta gcc tgg tca ata aga cag caa atc gcg cta gga tca gcg agg ggt      1308
Leu Ala Trp Ser Ile Arg Gln Gln Ile Ala Leu Gly Ser Ala Arg Gly
                405                 410                 415

ttg tct tat ctt cat gat cat tgc gac ccc aaa att att cac cgt gat      1356
Leu Ser Tyr Leu His Asp His Cys Asp Pro Lys Ile Ile His Arg Asp
                420                 425                 430

gtg aaa gct gct aat att ctg ttg gac gag gaa ttt gag gcg gtg gta      1404
Val Lys Ala Ala Asn Ile Leu Leu Asp Glu Glu Phe Glu Ala Val Val
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ggt gat ttc ggg tta gct aga ctt atg gac tat aaa gat act cat gtc      1452
Gly Asp Phe Gly Leu Ala Arg Leu Met Asp Tyr Lys Asp Thr His Val
        450                 455                 460

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Thr Thr Ala Val Arg Gly Thr Ile Gly His Ile Ala Pro Glu Tyr Leu
465                 470                 475                 480

tca act gga aaa tct tca gag aaa act gat gtt ttt ggc tac ggg atc      1548
Ser Thr Gly Lys Ser Ser Glu Lys Thr Asp Val Phe Gly Tyr Gly Ile
                485                 490                 495

atg ctt ttg gaa ctg att aca ggt cag aga gct ttt gat ctt gca aga      1596
Met Leu Leu Glu Leu Ile Thr Gly Gln Arg Ala Phe Asp Leu Ala Arg
                500                 505                 510

ctg gcg aat gac gat gac gtt atg ctc cta gat tgg gtg aaa ggg ctt      1644
Leu Ala Asn Asp Asp Asp Val Met Leu Leu Asp Trp Val Lys Gly Leu
                515                 520                 525

ttg aag gag aag aag ctg gag atg ctt gtg gat cct gac ctg caa agc      1692
Leu Lys Glu Lys Lys Leu Glu Met Leu Val Asp Pro Asp Leu Gln Ser
        530                 535                 540

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Asn Tyr Thr Glu Ala Glu Val Glu Gln Leu Ile Gln Val Ala Leu Leu
545                 550                 555                 560

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Cys Thr Gln Ser Ser Pro Met Glu Arg Pro Lys Met Ser Glu Val Val
                565                 570                 575

cga atg ctt gaa ggt gac ggt tta gcg gag aaa tgg gac gag tgg cag      1836
Arg Met Leu Glu Gly Asp Gly Leu Ala Glu Lys Trp Asp Glu Trp Gln
                580                 585                 590

aaa gtg gaa gtt ctc agg caa gaa gtg gag ctc tct tct cac ccc acc      1884
Lys Val Glu Val Leu Arg Gln Glu Val Glu Leu Ser Ser His Pro Thr
                595                 600                 605
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Ser Asp Trp Ile Leu Asp Ser Thr Asp Asn Leu His Ala Met Glu Leu
    610             615                 620

tct ggt cca aga taa acgacattgt aatttgccta acagaaaaga gaaagaacag     1987
Ser Gly Pro Arg
625

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                20                  25                  30

Gly Asp Ala Leu His Ser Leu Arg Ala Asn Leu Val Asp Pro Asn Asn
            35                  40                  45

Val Leu Gln Ser Trp Asp Pro Thr Leu Val Asn Pro Cys Thr Trp Phe
    50                  55                  60

His Val Thr Cys Asn Asn Glu Asn Ser Val Ile Arg Val Asp Leu Gly
65                  70                  75                  80

Asn Ala Asp Leu Ser Gly Gln Leu Val Pro Gln Leu Gly Gln Leu Lys
                85                  90                  95

Asn Leu Gln Tyr Leu Glu Leu Tyr Ser Asn Asn Ile Thr Gly Pro Val
                100                 105                 110

Pro Ser Asp Leu Gly Asn Leu Thr Asn Leu Val Ser Leu Asp Leu Tyr
            115                 120                 125

Leu Asn Ser Phe Thr Gly Pro Ile Pro Asp Ser Leu Gly Lys Leu Phe
    130                 135                 140

Lys Leu Arg Phe Leu Arg Leu Asn Asn Asn Ser Leu Thr Gly Pro Ile
145                 150                 155                 160

Pro Met Ser Leu Thr Asn Ile Met Thr Leu Gln Val Leu Asp Leu Ser
                165                 170                 175

Asn Asn Arg Leu Ser Gly Ser Val Pro Asp Asn Gly Ser Phe Ser Leu
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Phe Thr Pro Ile Ser Phe Ala Asn Asn Leu Asp Leu Cys Gly Pro Val
        195   200   205

Thr Ser Arg Pro Cys Pro Gly Ser Pro Pro Phe Ser Pro Pro Pro Pro
210   215   220

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225   230   235   240

Gly Ala Ile Ala Gly Gly Val Ala Ala Gly Ala Ala Leu Leu Phe Ala
            245   250   255

Ala Pro Ala Leu Ala Phe Ala Trp Trp Arg Arg Arg Lys Pro Gln Glu
            260   265   270

Phe Phe Phe Asp Val Pro Ala Glu Glu Asp Pro Glu Val His Leu Gly
        275   280   285

Gln Leu Lys Arg Phe Ser Leu Arg Glu Leu Gln Val Ala Thr Asp Ser
    290   295   300

Phe Ser Asn Lys Asn Ile Leu Gly Arg Gly Gly Phe Gly Lys Val Tyr
305   310   315   320

Lys Gly Arg Leu Ala Asp Gly Thr Leu Val Ala Val Lys Arg Leu Lys
            325   330   335

Glu Glu Arg Thr Pro Gly Gly Glu Leu Gln Phe Gln Thr Glu Val Glu
            340   345   350

Met Ile Ser Met Ala Val His Arg Asn Leu Leu Arg Leu Arg Gly Phe
        355   360   365

Cys Met Thr Pro Thr Glu Arg Leu Leu Val Tyr Pro Tyr Met Ala Asn
    370   375   380

Gly Ser Val Ala Ser Cys Leu Arg Glu Arg Pro Pro Ser Gln Leu Pro
385   390   395   400

Leu Ala Trp Ser Ile Arg Gln Gln Ile Ala Leu Gly Ser Ala Arg Gly
            405   410   415

Leu Ser Tyr Leu His Asp His Cys Asp Pro Lys Ile Ile His Arg Asp
            420   425   430

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Val Lys Ala Ala Asn Ile Leu Leu Asp Glu Glu Phe Glu Ala Val Val
        435             440             445

Gly Asp Phe Gly Leu Ala Arg Leu Met Asp Tyr Lys Asp Thr His Val
    450             455             460

Thr Thr Ala Val Arg Gly Thr Ile Gly His Ile Ala Pro Glu Tyr Leu
465             470             475             480

Ser Thr Gly Lys Ser Ser Glu Lys Thr Asp Val Phe Gly Tyr Gly Ile
            485             490             495

Met Leu Leu Glu Leu Ile Thr Gly Gln Arg Ala Phe Asp Leu Ala Arg
        500             505             510

Leu Ala Asn Asp Asp Asp Val Met Leu Leu Asp Trp Val Lys Gly Leu
        515             520             525

Leu Lys Glu Lys Lys Leu Glu Met Leu Val Asp Pro Asp Leu Gln Ser
    530             535             540

Asn Tyr Thr Glu Ala Glu Val Glu Gln Leu Ile Gln Val Ala Leu Leu
545             550             555             560

Cys Thr Gln Ser Ser Pro Met Glu Arg Pro Lys Met Ser Glu Val Val
            565             570             575

Arg Met Leu Glu Gly Asp Gly Leu Ala Glu Lys Trp Asp Glu Trp Gln
        580             585             590

Lys Val Glu Val Leu Arg Gln Glu Val Glu Leu Ser Ser His Pro Thr
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                    Met Glu Arg Arg Leu Met Ile Pro Cys Phe Phe
                     1           5                      10

tgg ttg att ctc gtt ttg gat ttg gtt ctc aga gtc tcg ggc aac gcc         159
Trp Leu Ile Leu Val Leu Asp Leu Val Leu Arg Val Ser Gly Asn Ala
             15              20                  25

gaa ggt gat gct cta agt gca ctg aaa aac agt tta gcc gac cct aat         207
Glu Gly Asp Ala Leu Ser Ala Leu Lys Asn Ser Leu Ala Asp Pro Asn
         30              35                  40

aag gtg ctt caa agt tgg gat gct act ctt gtt act cca tgt aca tgg         255
Lys Val Leu Gln Ser Trp Asp Ala Thr Leu Val Thr Pro Cys Thr Trp
 45              50                  55

ttt cat gtt act tgc aat agc gac aat agt gtt aca cgt gtt gac ctt         303
Phe His Val Thr Cys Asn Ser Asp Asn Ser Val Thr Arg Val Asp Leu
60                  65                  70                  75

ggg aat gca aat cta tct gga cag ctc gta atg caa ctt ggt cag ctt         351
Gly Asn Ala Asn Leu Ser Gly Gln Leu Val Met Gln Leu Gly Gln Leu
                 80              85                  90

cca aac ttg cag tac ttg gag ctt tat agc aat aac att act ggg aca         399
Pro Asn Leu Gln Tyr Leu Glu Leu Tyr Ser Asn Asn Ile Thr Gly Thr
             95                  100                 105

atc cca gaa cag ctt gga aat ctg acg gaa ttg gtg agc ttg gat ctt         447
Ile Pro Glu Gln Leu Gly Asn Leu Thr Glu Leu Val Ser Leu Asp Leu
         110                 115                 120

tac ttg aac aat tta agc ggg cct att cca tca act ctc ggc cga ctt         495
Tyr Leu Asn Asn Leu Ser Gly Pro Ile Pro Ser Thr Leu Gly Arg Leu
         125                 130                 135

aag aaa ctc cgt ttc ttg cgt ctt aat aac aat agc tta tct gga gaa         543
Lys Lys Leu Arg Phe Leu Arg Leu Asn Asn Asn Ser Leu Ser Gly Glu
140                 145                 150                 155

att cca agg tct ttg act gct gtc ctg acg cta caa gtt ctg gat ctc         591
Ile Pro Arg Ser Leu Thr Ala Val Leu Thr Leu Gln Val Leu Asp Leu
                 160                 165                 170

tca aac aat cct ctc acc gga gat att cct gtt aat ggt tcc ttt tca         639
Ser Asn Asn Pro Leu Thr Gly Asp Ile Pro Val Asn Gly Ser Phe Ser
                 175                 180                 185

ctt ttc act cca atc agt ttt gcc aac acc aag ttg act ccc ctt cct         687
Leu Phe Thr Pro Ile Ser Phe Ala Asn Thr Lys Leu Thr Pro Leu Pro
         190                 195                 200

gca tct cca ccg cct cct atc tct cct aca ccg cca tca cct gca ggg         735
Ala Ser Pro Pro Pro Pro Ile Ser Pro Thr Pro Pro Ser Pro Ala Gly
205                 210                 215

agt aat aga att act gga gcg att gcg gga gga gtt gct gca ggt gct         783
Ser Asn Arg Ile Thr Gly Ala Ile Ala Gly Gly Val Ala Ala Gly Ala
220                 225                 230                 235

gca ctt cta ttt gct gtt ccg gcc att gca cta gct tgg tgg cga agg         831
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Ala Leu Leu Phe Ala Val Pro Ala Ile Ala Leu Ala Trp Trp Arg Arg
              240   245   250

aaa aag ccg cag gac cac ttc ttt gat gta cca gct gaa gag gac cca   879
Lys Lys Pro Gln Asp His Phe Phe Asp Val Pro Ala Glu Glu Asp Pro
             255   260   265

gaa gtt cat tta gga caa ctg aag agg ttt tca ttg cgt gaa cta caa   927
Glu Val His Leu Gly Gln Leu Lys Arg Phe Ser Leu Arg Glu Leu Gln
             270   275   280

gtt gct tcg gat aat ttt agc aac aag aac ata ttg ggt aga ggt ggt   975
Val Ala Ser Asp Asn Phe Ser Asn Lys Asn Ile Leu Gly Arg Gly Gly
             285   290   295

ttt ggt aaa gtt tat aaa gga cgg tta gct gat ggt act tta gtg gcc   1023
Phe Gly Lys Val Tyr Lys Gly Arg Leu Ala Asp Gly Thr Leu Val Ala
300   305   310   315

gtt aaa agg cta aaa gag gag cgc acc caa ggt ggc gaa ctg cag ttc   1071
Val Lys Arg Leu Lys Glu Glu Arg Thr Gln Gly Gly Glu Leu Gln Phe
             320   325   330

cag aca gag gtt gag atg att agt atg gcg gtt cac aga aac ttg ctt   1119
Gln Thr Glu Val Glu Met Ile Ser Met Ala Val His Arg Asn Leu Leu
             335   340   345

cgg ctt cgt gga ttt tgc atg act cca acc gaa aga ttg ctt gtt tat   1167
Arg Leu Arg Gly Phe Cys Met Thr Pro Thr Glu Arg Leu Leu Val Tyr
             350   355   360

ccc tac atg gct aat gga agt gtt gcc tcc tgt tta aga gaa cgt ccc   1215
Pro Tyr Met Ala Asn Gly Ser Val Ala Ser Cys Leu Arg Glu Arg Pro
             365   370   375

gag tcc cag cca cca ctt gat tgg cca aag aga cag cgt att gcg ttg   1263
Glu Ser Gln Pro Pro Leu Asp Trp Pro Lys Arg Gln Arg Ile Ala Leu
380   385   390   395

gga tct gca aga ggg ctt gcg tat tta cat gat cat tgc gac cca aag   1311
Gly Ser Ala Arg Gly Leu Ala Tyr Leu His Asp His Cys Asp Pro Lys
                 400   405   410

att att cat cga gat gtg aaa gct gca aat att ttg ttg gat gaa gag   1359
Ile Ile His Arg Asp Val Lys Ala Ala Asn Ile Leu Leu Asp Glu Glu
                 415   420   425

ttt gaa gcc gtg gtt ggg gat ttt gga ctt gca aaa ctc atg gac tac   1407
Phe Glu Ala Val Val Gly Asp Phe Gly Leu Ala Lys Leu Met Asp Tyr
             430   435   440

aaa gac aca cat gtg aca acc gca gtg cgt ggg aca att ggt cat ata   1455
Lys Asp Thr His Val Thr Thr Ala Val Arg Gly Thr Ile Gly His Ile
             445   450   455

gcc cct gag tac ctt tcc act gga aaa tca tca gag aaa acc gat gtc   1503
Ala Pro Glu Tyr Leu Ser Thr Gly Lys Ser Ser Glu Lys Thr Asp Val
460   465   470   475

ttt ggg tat gga gtc atg ctt ctt gag ctt atc act gga caa agg gct   1551
Phe Gly Tyr Gly Val Met Leu Leu Glu Leu Ile Thr Gly Gln Arg Ala
             480   485   490

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ttt gat ctt gct cgc ctc gcg aat gat gat gat gtc atg tta cta gac        1599
Phe Asp Leu Ala Arg Leu Ala Asn Asp Asp Asp Val Met Leu Leu Asp
            495                 500                 505

tgg gtg aaa ggg ttg tta aaa gag aag aaa ttg gaa gca cta gta gat        1647
Trp Val Lys Gly Leu Leu Lys Glu Lys Lys Leu Glu Ala Leu Val Asp
            510                 515                 520

gtt gat ctt cag ggt aat tac aaa gac gaa gaa gtg gag cag cta atc        1695
Val Asp Leu Gln Gly Asn Tyr Lys Asp Glu Glu Val Glu Gln Leu Ile
        525                 530                 535

caa gtg gct tta ctc tgc act cag agt tca cca atg gaa aga ccc aaa        1743
Gln Val Ala Leu Leu Cys Thr Gln Ser Ser Pro Met Glu Arg Pro Lys
540                 545                 550                 555

atg tct gaa gtt gta aga atg ctt gaa gga gat ggt tta gct gag aga        1791
Met Ser Glu Val Val Arg Met Leu Glu Gly Asp Gly Leu Ala Glu Arg
                560                 565                 570

tgg gaa gag tgg caa aag gag gaa atg ttc aga caa gat ttc aac tac        1839
Trp Glu Glu Trp Gln Lys Glu Glu Met Phe Arg Gln Asp Phe Asn Tyr
            575                 580                 585

cca acc cac cat cca gcc gtg tct ggc tgg atc att ggc gat tcc act        1887
Pro Thr His His Pro Ala Val Ser Gly Trp Ile Ile Gly Asp Ser Thr
            590                 595                 600

tcc cag atc gaa aac gaa tac ccc tcg ggt cca aga taa gattcgaaac        1936
Ser Gln Ile Glu Asn Glu Tyr Pro Ser Gly Pro Arg
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Ser Ala Leu Lys Asn Ser Leu Ala Asp Pro Asn Lys Val Leu Gln Ser
            35                  40                  45


Trp Asp Ala Thr Leu Val Thr Pro Cys Thr Trp Phe His Val Thr Cys
    50                  55                  60


Asn Ser Asp Asn Ser Val Thr Arg Val Asp Leu Gly Asn Ala Asn Leu
65                  70                  75                  80


Ser Gly Gln Leu Val Met Gln Leu Gly Gln Leu Pro Asn Leu Gln Tyr
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Leu Glu Leu Tyr Ser Asn Asn Ile Thr Gly Thr Ile Pro Glu Gln Leu
            100   105   110

Gly Asn Leu Thr Glu Leu Val Ser Leu Asp Leu Tyr Leu Asn Asn Leu
            115   120   125

Ser Gly Pro Ile Pro Ser Thr Leu Gly Arg Leu Lys Lys Leu Arg Phe
        130   135   140

Leu Arg Leu Asn Asn Asn Ser Leu Ser Gly Glu Ile Pro Arg Ser Leu
145   150   155   160

Thr Ala Val Leu Thr Leu Gln Val Leu Asp Leu Ser Asn Asn Pro Leu
                165   170   175

Thr Gly Asp Ile Pro Val Asn Gly Ser Phe Ser Leu Phe Thr Pro Ile
            180   185   190

Ser Phe Ala Asn Thr Lys Leu Thr Pro Leu Pro Ala Ser Pro Pro Pro
        195   200   205

Pro Ile Ser Pro Thr Pro Pro Ser Pro Ala Gly Ser Asn Arg Ile Thr
    210   215   220

Gly Ala Ile Ala Gly Gly Val Ala Ala Gly Ala Ala Leu Leu Phe Ala
225   230   235   240

Val Pro Ala Ile Ala Leu Ala Trp Trp Arg Arg Lys Lys Pro Gln Asp
                245   250   255

His Phe Phe Asp Val Pro Ala Glu Glu Asp Pro Glu Val His Leu Gly
            260   265   270

Gln Leu Lys Arg Phe Ser Leu Arg Glu Leu Gln Val Ala Ser Asp Asn
        275   280   285

Phe Ser Asn Lys Asn Ile Leu Gly Arg Gly Gly Phe Gly Lys Val Tyr
    290   295   300

Lys Gly Arg Leu Ala Asp Gly Thr Leu Val Ala Val Lys Arg Leu Lys
305   310   315   320

Glu Glu Arg Thr Gln Gly Gly Glu Leu Gln Phe Gln Thr Glu Val Glu
                325   330   335

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Met Ile Ser Met Ala Val His Arg Asn Leu Leu Arg Leu Arg Gly Phe
        340   345   350

Cys Met Thr Pro Thr Glu Arg Leu Leu Val Tyr Pro Tyr Met Ala Asn
        355   360   365

Gly Ser Val Ala Ser Cys Leu Arg Glu Arg Pro Glu Ser Gln Pro Pro
    370   375   380

Leu Asp Trp Pro Lys Arg Gln Arg Ile Ala Leu Gly Ser Ala Arg Gly
385   390   395   400

Leu Ala Tyr Leu His Asp His Cys Asp Pro Lys Ile Ile His Arg Asp
                405   410   415

Val Lys Ala Ala Asn Ile Leu Leu Asp Glu Glu Phe Glu Ala Val Val
            420   425   430

Gly Asp Phe Gly Leu Ala Lys Leu Met Asp Tyr Lys Asp Thr His Val
            435   440   445

Thr Thr Ala Val Arg Gly Thr Ile Gly His Ile Ala Pro Glu Tyr Leu
    450   455   460

Ser Thr Gly Lys Ser Ser Glu Lys Thr Asp Val Phe Gly Tyr Gly Val
465   470   475   480

Met Leu Leu Glu Leu Ile Thr Gly Gln Arg Ala Phe Asp Leu Ala Arg
                485   490   495

Leu Ala Asn Asp Asp Asp Val Met Leu Leu Asp Trp Val Lys Gly Leu
                500   505   510

Leu Lys Glu Lys Lys Leu Glu Ala Leu Val Asp Val Asp Leu Gln Gly
            515   520   525

Asn Tyr Lys Asp Glu Glu Val Glu Gln Leu Ile Gln Val Ala Leu Leu
    530   535   540

Cys Thr Gln Ser Ser Pro Met Glu Arg Pro Lys Met Ser Glu Val Val
545   550   555   560

Arg Met Leu Glu Gly Asp Gly Leu Ala Glu Arg Trp Glu Glu Trp Gln
                565   570   575

Lys Glu Glu Met Phe Arg Gln Asp Phe Asn Tyr Pro Thr His His Pro
            580   585   590

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Ala Val Ser Gly Trp Ile Ile Gly Asp Ser Thr Ser Gln Ile Glu Asn
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Glu Tyr Pro Ser Gly Pro Arg
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Met Lys Ile Gln Ile His Leu Leu Tyr Ser Phe Leu Phe Leu Cys Phe
        10              15                  20

tct act ctc act cta tct tct gag ccc aga aac cct gaa gtt gag gcg       149
Ser Thr Leu Thr Leu Ser Ser Glu Pro Arg Asn Pro Glu Val Glu Ala
25                  30                  35                  40

ttg ata agt ata agg aac aat ttg cat gat cct cat gga gct ttg aac       197
Leu Ile Ser Ile Arg Asn Asn Leu His Asp Pro His Gly Ala Leu Asn
                45                  50                  55

aat tgg gac gag ttt tca gtt gat cct tgt agc tgg gct atg atc act       245
Asn Trp Asp Glu Phe Ser Val Asp Pro Cys Ser Trp Ala Met Ile Thr
                60                  65                  70

tgc tct ccc gac aac ctc gtc att gga cta gga gcg ccg agc cag tct       293
Cys Ser Pro Asp Asn Leu Val Ile Gly Leu Gly Ala Pro Ser Gln Ser
            75                  80                  85

ctc tcg gga ggt tta tct gag tct atc gga aat ctc aca aat ctc cga       341
Leu Ser Gly Gly Leu Ser Glu Ser Ile Gly Asn Leu Thr Asn Leu Arg
        90                  95                  100

caa gtg tca ttg caa aat aac aac atc tcc ggc aaa att cca ccg gag       389
Gln Val Ser Leu Gln Asn Asn Asn Ile Ser Gly Lys Ile Pro Pro Glu
105                 110                 115                 120

ctc ggt ttt cta ccc aaa tta caa acc ttg gat ctt tcc aac aac cga       437
Leu Gly Phe Leu Pro Lys Leu Gln Thr Leu Asp Leu Ser Asn Asn Arg
                125                 130                 135

ttc tcc ggt gac atc cct gtt tcc atc gac cag cta agc agc ctt caa       485
Phe Ser Gly Asp Ile Pro Val Ser Ile Asp Gln Leu Ser Ser Leu Gln
                140                 145                 150

tat ctg aga ctc aac aac aac tct ttg tct ggg ccc ttc cct gct tct       533
Tyr Leu Arg Leu Asn Asn Asn Ser Leu Ser Gly Pro Phe Pro Ala Ser
        155                 160                 165
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Leu Ser Gln Ile Pro His Leu Ser Phe Leu Asp Leu Ser Tyr Asn Asn
    170             175             180

ctc agt ggc cct gtt cct aaa ttc cca gca agg act tta aac gtt gct      629
Leu Ser Gly Pro Val Pro Lys Phe Pro Ala Arg Thr Leu Asn Val Ala
185             190             195             200

ggt aat cct ttg att tgt aga agc aac cca cct gag att tgt tct gga      677
Gly Asn Pro Leu Ile Cys Arg Ser Asn Pro Pro Glu Ile Cys Ser Gly
                205             210             215

tca atc aat gca agt cca ctt tct gtt tct ttg agc tct tca tca gga      725
Ser Ile Asn Ala Ser Pro Leu Ser Val Ser Leu Ser Ser Ser Ser Gly
            220             225             230

cgc agg tct aat aga ttg gca ata gct ctt agt gta agc ctt ggc tct      773
Arg Arg Ser Asn Arg Leu Ala Ile Ala Leu Ser Val Ser Leu Gly Ser
        235             240             245

gtt gtt ata cta gtc ctt gct ctc ggg tcc ttt tgt tgg tac cga aag      821
Val Val Ile Leu Val Leu Ala Leu Gly Ser Phe Cys Trp Tyr Arg Lys
    250             255             260

aaa caa aga agg cta ctg atc ctt aac tta aac gca gat aaa caa gag      869
Lys Gln Arg Arg Leu Leu Ile Leu Asn Leu Asn Ala Asp Lys Gln Glu
265             270             275             280

gaa ggg ctt caa gga ctt ggg aat cta aga agc ttc aca ttc aga gaa      917
Glu Gly Leu Gln Gly Leu Gly Asn Leu Arg Ser Phe Thr Phe Arg Glu
            285             290             295

ctc cat gtt tat aca gat ggt ttc agt tcc aag aac att ctc ggc gct      965
Leu His Val Tyr Thr Asp Gly Phe Ser Ser Lys Asn Ile Leu Gly Ala
            300             305             310

ggt gga ttc ggt aat gtg tac aga ggc aag ctt gga gat ggg aca atg     1013
Gly Gly Phe Gly Asn Val Tyr Arg Gly Lys Leu Gly Asp Gly Thr Met
        315             320             325

gtg gca gtg aaa cgg ttg aag gat att aat gga acc tca ggg gat tca     1061
Val Ala Val Lys Arg Leu Lys Asp Ile Asn Gly Thr Ser Gly Asp Ser
        330             335             340

cag ttt cgt atg gag cta gag atg att agc tta gct gtt cat aag aat     1109
Gln Phe Arg Met Glu Leu Glu Met Ile Ser Leu Ala Val His Lys Asn
345             350             355             360

ctg ctt cgg tta att ggt tat tgc gca act tct ggt gaa agg ctt ctt     1157
Leu Leu Arg Leu Ile Gly Tyr Cys Ala Thr Ser Gly Glu Arg Leu Leu
            365             370             375

gtt tac cct tac atg cct aat gga agc gtc gcc tct aag ctt aaa tct     1205
Val Tyr Pro Tyr Met Pro Asn Gly Ser Val Ala Ser Lys Leu Lys Ser
            380             385             390

aaa ccg gca ttg gac tgg aac atg agg aag agg ata gca att ggt gca     1253
Lys Pro Ala Leu Asp Trp Asn Met Arg Lys Arg Ile Ala Ile Gly Ala
        395             400             405

gcg aga ggt ttg ttg tat cta cat gag caa tgt gat ccc aag atc att     1301
Ala Arg Gly Leu Leu Tyr Leu His Glu Gln Cys Asp Pro Lys Ile Ile
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        410                     415                     420
cat aga gat gta aag gca gct aat att ctc tta gac gag tgc ttt gaa    1349
His Arg Asp Val Lys Ala Ala Asn Ile Leu Leu Asp Glu Cys Phe Glu
425                     430                 435                 440

gct gtt gtt ggt gac ttt gga ctc gca aag ctc ctt aac cat gcg gat    1397
Ala Val Val Gly Asp Phe Gly Leu Ala Lys Leu Leu Asn His Ala Asp
                        445                 450                 455

tct cat gtc aca act gcg gtc cgt ggt acg gtt ggc cac att gca cct    1445
Ser His Val Thr Thr Ala Val Arg Gly Thr Val Gly His Ile Ala Pro
                460                 465                 470

gaa tat ctc tcc act ggt cag tct tct gag aaa acc gat gtg ttt ggg    1493
Glu Tyr Leu Ser Thr Gly Gln Ser Ser Glu Lys Thr Asp Val Phe Gly
                475                 480                 485

ttc ggt ata cta ttg ctc gag ctc ata acc gga ctg aga gct ctt gag    1541
Phe Gly Ile Leu Leu Leu Glu Leu Ile Thr Gly Leu Arg Ala Leu Glu
        490                 495                 500

ttt ggt aaa acc gtt agc cag aaa gga gct atg ctt gaa tgg gtg agg    1589
Phe Gly Lys Thr Val Ser Gln Lys Gly Ala Met Leu Glu Trp Val Arg
505                 510                 515                 520

aaa tta cat gaa gag atg aaa gta gag gaa cta ttg gat cga gaa ctc    1637
Lys Leu His Glu Glu Met Lys Val Glu Glu Leu Leu Asp Arg Glu Leu
                525                 530                 535

gga act aac tac gat aag att gaa gtt gga gag atg ttg caa gtg gct    1685
Gly Thr Asn Tyr Asp Lys Ile Glu Val Gly Glu Met Leu Gln Val Ala
                540                 545                 550

ttg cta tgc aca caa tat ctg cca gct cat cgt cct aaa atg tct gaa    1733
Leu Leu Cys Thr Gln Tyr Leu Pro Ala His Arg Pro Lys Met Ser Glu
        555                 560                 565

gtt gtt ttg atg ctt gaa ggc gat gga tta gcc gag aga tgg gct gct    1781
Val Val Leu Met Leu Glu Gly Asp Gly Leu Ala Glu Arg Trp Ala Ala
        570                 575                 580

tcg cat aac cat tca cat ttc tac cat gcc aat atc tct ttc aag aca    1829
Ser His Asn His Ser His Phe Tyr His Ala Asn Ile Ser Phe Lys Thr
585                 590                 595                 600

atc tct tct ctg tct act act tct gtc tca agg ctt gac gca cat tgc    1877
Ile Ser Ser Leu Ser Thr Thr Ser Val Ser Arg Leu Asp Ala His Cys
                605                 610                 615

aat gat cca act tat caa atg ttt gga tct tcg gct ttc gat gat gac    1925
Asn Asp Pro Thr Tyr Gln Met Phe Gly Ser Ser Ala Phe Asp Asp Asp
                620                 625                 630

gat gat cat cag cct tta gat tcc ttt gcc atg gaa cta tcc ggt cca    1973
Asp Asp His Gln Pro Leu Asp Ser Phe Ala Met Glu Leu Ser Gly Pro
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Arg

aaaaa                                                              2034
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Pro Arg Asn Pro Glu Val Glu Ala Leu Ile Ser Ile Arg Asn Asn Leu
        35   40   45

His Asp Pro His Gly Ala Leu Asn Asn Trp Asp Glu Phe Ser Val Asp
    50   55   60

Pro Cys Ser Trp Ala Met Ile Thr Cys Ser Pro Asp Asn Leu Val Ile
65   70   75   80

Gly Leu Gly Ala Pro Ser Gln Ser Leu Ser Gly Gly Leu Ser Glu Ser
                85   90   95

Ile Gly Asn Leu Thr Asn Leu Arg Gln Val Ser Leu Gln Asn Asn Asn
                100   105   110

Ile Ser Gly Lys Ile Pro Pro Glu Leu Gly Phe Leu Pro Lys Leu Gln
        115   120   125

Thr Leu Asp Leu Ser Asn Asn Arg Phe Ser Gly Asp Ile Pro Val Ser
    130   135   140

Ile Asp Gln Leu Ser Ser Leu Gln Tyr Leu Arg Leu Asn Asn Asn Ser
145   150   155   160

Leu Ser Gly Pro Phe Pro Ala Ser Leu Ser Gln Ile Pro His Leu Ser
                165   170   175

Phe Leu Asp Leu Ser Tyr Asn Asn Leu Ser Gly Pro Val Pro Lys Phe
                180   185   190

Pro Ala Arg Thr Leu Asn Val Ala Gly Asn Pro Leu Ile Cys Arg Ser
        195   200   205

Asn Pro Pro Glu Ile Cys Ser Gly Ser Ile Asn Ala Ser Pro Leu Ser
    210   215   220

Val Ser Leu Ser Ser Ser Ser Gly Arg Arg Ser Asn Arg Leu Ala Ile
225   230   235   240

Ala Leu Ser Val Ser Leu Gly Ser Val Val Ile Leu Val Leu Ala Leu
                245   250   255

Gly Ser Phe Cys Trp Tyr Arg Lys Lys Gln Arg Arg Leu Leu Ile Leu
            260   265   270

Asn Leu Asn Ala Asp Lys Gln Glu Glu Gly Leu Gln Gly Leu Gly Asn
            275   280   285

Leu Arg Ser Phe Thr Phe Arg Glu Leu His Val Tyr Thr Asp Gly Phe
    290   295   300

Ser Ser Lys Asn Ile Leu Gly Ala Gly Gly Phe Gly Asn Val Tyr Arg
305   310   315   320

Gly Lys Leu Gly Asp Gly Thr Met Val Ala Val Lys Arg Leu Lys Asp
                325   330   335

Ile Asn Gly Thr Ser Gly Asp Ser Gln Phe Arg Met Glu Leu Glu Met
                340   345   350

Ile Ser Leu Ala Val His Lys Asn Leu Leu Arg Leu Ile Gly Tyr Cys
    355   360   365

Ala Thr Ser Gly Glu Arg Leu Leu Val Tyr Pro Tyr Met Pro Asn Gly
    370   375   380

Ser Val Ala Ser Lys Leu Lys Ser Lys Pro Ala Leu Asp Trp Asn Met
385   390   395   400

Arg Lys Arg Ile Ala Ile Gly Ala Ala Arg Gly Leu Leu Tyr Leu His
                405   410   415

Glu Gln Cys Asp Pro Lys Ile Ile His Arg Asp Val Lys Ala Ala Asn
            420   425   430

Ile Leu Leu Asp Glu Cys Phe Glu Ala Val Val Gly Asp Phe Gly Leu
    435   440   445

Ala Lys Leu Leu Asn His Ala Asp Ser His Val Thr Thr Ala Val Arg
    450   455   460

Gly Thr Val Gly His Ile Ala Pro Glu Tyr Leu Ser Thr Gly Gln Ser

465   470   475   480

Ser Glu Lys Thr Asp Val Phe Gly Phe Gly Ile Leu Leu Leu Glu Leu
                485   490   495

Ile Thr Gly Leu Arg Ala Leu Glu Phe Gly Lys Thr Val Ser Gln Lys
            500   505   510

Gly Ala Met Leu Glu Trp Val Arg Lys Leu His Glu Glu Met Lys Val
        515   520   525

Glu Glu Leu Leu Asp Arg Glu Leu Gly Thr Asn Tyr Asp Lys Ile Glu
    530   535   540

Val Gly Glu Met Leu Gln Val Ala Leu Leu Cys Thr Gln Tyr Leu Pro
545   550   555   560

Ala His Arg Pro Lys Met Ser Glu Val Val Leu Met Leu Glu Gly Asp
                565   570   575

Gly Leu Ala Glu Arg Trp Ala Ala Ser His Asn His Ser His Phe Tyr
            580   585   590

His Ala Asn Ile Ser Phe Lys Thr Ile Ser Ser Leu Ser Thr Thr Ser
        595   600   605

Val Ser Arg Leu Asp Ala His Cys Asn Asp Pro Thr Tyr Gln Met Phe
    610   615   620

Gly Ser Ser Ala Phe Asp Asp Asp Asp His Gln Pro Leu Asp Ser
625   630   635   640

Phe Ala Met Glu Leu Ser Gly Pro Arg
                645

<210> 60
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<212> DNA
<213> Arabidopsis thaliana

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tttaaaaacc ttgctagttc tcaattctca tgactttgct tttagtctta gaagtggaaa   60

atg gaa cat gga tca tcc cgt ggc ttt att tgg ctg att cta ttt ctc   108
Met Glu His Gly Ser Ser Arg Gly Phe Ile Trp Leu Ile Leu Phe Leu
1   5   10   15

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gat ttt gtt tcc aga gtc acc gga aaa aca caa gtt gat gct ctc att        156
Asp Phe Val Ser Arg Val Thr Gly Lys Thr Gln Val Asp Ala Leu Ile
        20                  25                  30

gct cta aga agc agt tta tca tca ggt gac cat aca aac aat ata ctc        204
Ala Leu Arg Ser Ser Leu Ser Ser Gly Asp His Thr Asn Asn Ile Leu
        35                  40                  45

caa agc tgg aat gcc act cac gtt act cca tgt tca tgg ttt cat gtt        252
Gln Ser Trp Asn Ala Thr His Val Thr Pro Cys Ser Trp Phe His Val
        50                  55                  60

act tgc aat act gaa aac agt gtt act cgt ctt gac ctg ggg agt gct        300
Thr Cys Asn Thr Glu Asn Ser Val Thr Arg Leu Asp Leu Gly Ser Ala
65                  70                  75                  80

aat cta tct gga gaa ctg gtg cca cag ctt gct cag ctt cca aat ttg        348
Asn Leu Ser Gly Glu Leu Val Pro Gln Leu Ala Gln Leu Pro Asn Leu
                85                  90                  95

cag tac ttg gaa ctt ttt aac aat aat att act ggg gag ata cct gag        396
Gln Tyr Leu Glu Leu Phe Asn Asn Asn Ile Thr Gly Glu Ile Pro Glu
            100                 105                 110

gag ctt ggc gac ttg atg gaa cta gta agc ttg gac ctt ttt gca aac        444
Glu Leu Gly Asp Leu Met Glu Leu Val Ser Leu Asp Leu Phe Ala Asn
            115                 120                 125

aac ata agc ggt ccc atc cct tcc tct ctt ggc aaa cta gga aaa ctc        492
Asn Ile Ser Gly Pro Ile Pro Ser Ser Leu Gly Lys Leu Gly Lys Leu
        130                 135                 140

cgc ttc ttg cgt ctt tat aac aac agc tta tct gga gaa att cca agg        540
Arg Phe Leu Arg Leu Tyr Asn Asn Ser Leu Ser Gly Glu Ile Pro Arg
145                 150                 155                 160

tct ttg act gct ctg ccg ctg gat gtt ctt gat atc tca aac aat cgg        588
Ser Leu Thr Ala Leu Pro Leu Asp Val Leu Asp Ile Ser Asn Asn Arg
                165                 170                 175

ctc agt gga gat att cct gtt aat ggt tcc ttt tcg cag ttc act tct        636
Leu Ser Gly Asp Ile Pro Val Asn Gly Ser Phe Ser Gln Phe Thr Ser
                180                 185                 190

atg agt ttt gcc aat aat aaa tta agg ccg cga cct gca tct cct tca        684
Met Ser Phe Ala Asn Asn Lys Leu Arg Pro Arg Pro Ala Ser Pro Ser
            195                 200                 205

cca tca cct tca gga acg tct gca gca ata gta gtg gga gtt gct gcg        732
Pro Ser Pro Ser Gly Thr Ser Ala Ala Ile Val Val Gly Val Ala Ala
        210                 215                 220

ggt gca gca ctt cta ttt gcg ctt gct tgg tgg ctg aga aga aaa ctg        780
Gly Ala Ala Leu Leu Phe Ala Leu Ala Trp Trp Leu Arg Arg Lys Leu
225                 230                 235                 240

cag ggt cac ttt ctt gat gta cct gct gaa gaa gac cca gag gtt tat        828
Gln Gly His Phe Leu Asp Val Pro Ala Glu Glu Asp Pro Glu Val Tyr
                245                 250                 255

tta gga caa ttt aaa agg ttc tcc ttg cgt gaa ctg cta gtt gct aca        876
Leu Gly Gln Phe Lys Arg Phe Ser Leu Arg Glu Leu Leu Val Ala Thr
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         260   265   270

gag aaa ttt agc aaa aga aat gta ttg ggc aaa gga cgt ttt ggt ata   924
Glu Lys Phe Ser Lys Arg Asn Val Leu Gly Lys Gly Arg Phe Gly Ile
        275   280   285

ttg tat aaa gga cgt tta gct gat gac act cta gtg gct gtg aaa cgg   972
Leu Tyr Lys Gly Arg Leu Ala Asp Asp Thr Leu Val Ala Val Lys Arg
        290   295   300

cta aat gaa gaa cgt acc aag ggt ggg gaa ctg cag ttt caa acc gaa   1020
Leu Asn Glu Glu Arg Thr Lys Gly Gly Glu Leu Gln Phe Gln Thr Glu
305   310   315   320

gtt gag atg atc agt atg gcc gtt cat agg aac ttg ctt cgg ctt cgt   1068
Val Glu Met Ile Ser Met Ala Val His Arg Asn Leu Leu Arg Leu Arg
                325   330   335

ggc ttt tgc atg act cca act gaa aga tta ctt gtt tat ccc tac atg   1116
Gly Phe Cys Met Thr Pro Thr Glu Arg Leu Leu Val Tyr Pro Tyr Met
                340   345   350

gct aat gga agt gtt gct tct tgt tta aga gag cgt cct gaa ggc aat   1164
Ala Asn Gly Ser Val Ala Ser Cys Leu Arg Glu Arg Pro Glu Gly Asn
                355   360   365

cca gcc ctt gac tgg cca aaa aga aag cat att gct ctg gga tca gca   1212
Pro Ala Leu Asp Trp Pro Lys Arg Lys His Ile Ala Leu Gly Ser Ala
        370   375   380

agg ggg ctc gca tat tta cac gat cat tgc gac caa aag atc att cac   1260
Arg Gly Leu Ala Tyr Leu His Asp His Cys Asp Gln Lys Ile Ile His
385   390   395   400

ctg gat gtg aaa gct gca aat ata ctg tta gat gaa gag ttt gaa gct   1308
Leu Asp Val Lys Ala Ala Asn Ile Leu Leu Asp Glu Glu Phe Glu Ala
                405   410   415

gtt gtt gga gat ttt ggg cta gca aaa tta atg aat tat aac gac tcc   1356
Val Val Gly Asp Phe Gly Leu Ala Lys Leu Met Asn Tyr Asn Asp Ser
                420   425   430

cat gtg aca act gct gta cgg ggt acg att ggc cat ata gcg ccc gag   1404
His Val Thr Thr Ala Val Arg Gly Thr Ile Gly His Ile Ala Pro Glu
                435   440   445

tac ctc tcg aca gga aaa tct tct gag aag act gat gtt ttt ggg tac   1452
Tyr Leu Ser Thr Gly Lys Ser Ser Glu Lys Thr Asp Val Phe Gly Tyr
        450   455   460

ggg gtc atg ctt ctc gag ctc atc act gga caa aag gct ttc gat ctt   1500
Gly Val Met Leu Leu Glu Leu Ile Thr Gly Gln Lys Ala Phe Asp Leu
465   470   475   480

gct cgg ctt gca aat gat gat gat atc atg tta ctc gac tgg gtg aaa   1548
Ala Arg Leu Ala Asn Asp Asp Asp Ile Met Leu Leu Asp Trp Val Lys
                485   490   495

gag gtt ttg aaa gag aag aag ttg gaa agc ctt gtg gat gca gaa ctc   1596
Glu Val Leu Lys Glu Lys Lys Leu Glu Ser Leu Val Asp Ala Glu Leu
                500   505   510

gaa gga aag tac gtg gaa aca gaa gtg gag cag ctg ata caa atg gct   1644

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Glu Gly Lys Tyr Val Glu Thr Glu Val Glu Gln Leu Ile Gln Met Ala
        515             520             525

ctg ctc tgc act caa agt tct gca atg gaa cgt cca aag atg tca gaa   1692
Leu Leu Cys Thr Gln Ser Ser Ala Met Glu Arg Pro Lys Met Ser Glu
        530             535             540

gta gtg aga atg ctg gaa gga gat ggt tta gct gag aga tgg gaa gaa   1740
Val Val Arg Met Leu Glu Gly Asp Gly Leu Ala Glu Arg Trp Glu Glu
545             550             555             560

tgg caa aag gag gag atg cca ata cat gat ttt aac tat caa gcc tat   1788
Trp Gln Lys Glu Glu Met Pro Ile His Asp Phe Asn Tyr Gln Ala Tyr
                565             570             575

cct cat gct ggc act gac tgg ctc atc ccc tat tcc aat tcc ctt atc   1836
Pro His Ala Gly Thr Asp Trp Leu Ile Pro Tyr Ser Asn Ser Leu Ile
                580             585             590

gaa aac gat tac ccc tcg ggg cca aga taa ccttttagaa agggtcattt     1886
Glu Asn Asp Tyr Pro Ser Gly Pro Arg
        595             600

cttgtgggtt cttcaacaag tatatatata ggtagtgaag ttgtaagaag caaaacccca   1946

cattcacctt tgaatatcac tactctataa                                   1976
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Met Glu His Gly Ser Ser Arg Gly Phe Ile Trp Leu Ile Leu Phe Leu
1               5               10              15

Asp Phe Val Ser Arg Val Thr Gly Lys Thr Gln Val Asp Ala Leu Ile
        20              25              30

Ala Leu Arg Ser Ser Leu Ser Ser Gly Asp His Thr Asn Asn Ile Leu
        35              40              45

Gln Ser Trp Asn Ala Thr His Val Thr Pro Cys Ser Trp Phe His Val
        50              55              60

Thr Cys Asn Thr Glu Asn Ser Val Thr Arg Leu Asp Leu Gly Ser Ala
65              70              75              80

Asn Leu Ser Gly Glu Leu Val Pro Gln Leu Ala Gln Leu Pro Asn Leu
                85              90              95

Gln Tyr Leu Glu Leu Phe Asn Asn Asn Ile Thr Gly Glu Ile Pro Glu
        100             105             110
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Glu Leu Gly Asp Leu Met Glu Leu Val Ser Leu Asp Leu Phe Ala Asn
        115             120             125

Asn Ile Ser Gly Pro Ile Pro Ser Ser Leu Gly Lys Leu Gly Lys Leu
    130             135             140

Arg Phe Leu Arg Leu Tyr Asn Asn Ser Leu Ser Gly Glu Ile Pro Arg
145             150             155             160

Ser Leu Thr Ala Leu Pro Leu Asp Val Leu Asp Ile Ser Asn Asn Arg
            165             170             175

Leu Ser Gly Asp Ile Pro Val Asn Gly Ser Phe Ser Gln Phe Thr Ser
            180             185             190

Met Ser Phe Ala Asn Asn Lys Leu Arg Pro Arg Pro Ala Ser Pro Ser
        195             200             205

Pro Ser Pro Ser Gly Thr Ser Ala Ala Ile Val Val Gly Val Ala Ala
    210             215             220

Gly Ala Ala Leu Leu Phe Ala Leu Ala Trp Trp Leu Arg Arg Lys Leu
225             230             235             240

Gln Gly His Phe Leu Asp Val Pro Ala Glu Glu Asp Pro Glu Val Tyr
            245             250             255

Leu Gly Gln Phe Lys Arg Phe Ser Leu Arg Glu Leu Leu Val Ala Thr
            260             265             270

Glu Lys Phe Ser Lys Arg Asn Val Leu Gly Lys Gly Arg Phe Gly Ile
        275             280             285

Leu Tyr Lys Gly Arg Leu Ala Asp Asp Thr Leu Val Ala Val Lys Arg
    290             295             300

Leu Asn Glu Glu Arg Thr Lys Gly Gly Glu Leu Gln Phe Gln Thr Glu
305             310             315             320

Val Glu Met Ile Ser Met Ala Val His Arg Asn Leu Leu Arg Leu Arg
            325             330             335

Gly Phe Cys Met Thr Pro Thr Glu Arg Leu Leu Val Tyr Pro Tyr Met
            340             345             350

Ala Asn Gly Ser Val Ala Ser Cys Leu Arg Glu Arg Pro Glu Gly Asn
    355             360             365
```

```
Pro Ala Leu Asp Trp Pro Lys Arg Lys His Ile Ala Leu Gly Ser Ala
    370             375             380

Arg Gly Leu Ala Tyr Leu His Asp His Cys Asp Gln Lys Ile Ile His
385             390             395             400

Leu Asp Val Lys Ala Ala Asn Ile Leu Leu Asp Glu Glu Phe Glu Ala
                405             410             415

Val Val Gly Asp Phe Gly Leu Ala Lys Leu Met Asn Tyr Asn Asp Ser
                420             425             430

His Val Thr Thr Ala Val Arg Gly Thr Ile Gly His Ile Ala Pro Glu
        435             440             445

Tyr Leu Ser Thr Gly Lys Ser Ser Glu Lys Thr Asp Val Phe Gly Tyr
    450             455             460

Gly Val Met Leu Leu Glu Leu Ile Thr Gly Gln Lys Ala Phe Asp Leu
465             470             475             480

Ala Arg Leu Ala Asn Asp Asp Asp Ile Met Leu Leu Asp Trp Val Lys
                485             490             495

Glu Val Leu Lys Glu Lys Lys Leu Glu Ser Leu Val Asp Ala Glu Leu
                500             505             510

Glu Gly Lys Tyr Val Glu Thr Glu Val Glu Gln Leu Ile Gln Met Ala
            515             520             525

Leu Leu Cys Thr Gln Ser Ser Ala Met Glu Arg Pro Lys Met Ser Glu
    530             535             540

Val Val Arg Met Leu Glu Gly Asp Gly Leu Ala Glu Arg Trp Glu Glu
545             550             555             560

Trp Gln Lys Glu Glu Met Pro Ile His Asp Phe Asn Tyr Gln Ala Tyr
                565             570             575

Pro His Ala Gly Thr Asp Trp Leu Ile Pro Tyr Ser Asn Ser Leu Ile
                580             585             590

Glu Asn Asp Tyr Pro Ser Gly Pro Arg
    595             600
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<212> DNA
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<400> 62

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                                                                 Met
                                                                 1

gaa caa aga tca ctc ctt tgc ttc ctt tat ctg ctc cta cta ttc aat      105
Glu Gln Arg Ser Leu Leu Cys Phe Leu Tyr Leu Leu Leu Leu Phe Asn
            5               10                  15

ttc act ctc aga gtc gct gga aac gct gaa ggt gat gct ttg act cag      153
Phe Thr Leu Arg Val Ala Gly Asn Ala Glu Gly Asp Ala Leu Thr Gln
        20                  25                  30

ctg aaa aac agt ttg tca tca ggt gac cct gca aac aat gta ctc caa      201
Leu Lys Asn Ser Leu Ser Ser Gly Asp Pro Ala Asn Asn Val Leu Gln
        35                  40                  45

agc tgg gat gct act ctt gtt act cca tgt act tgg ttt cat gtt act      249
Ser Trp Asp Ala Thr Leu Val Thr Pro Cys Thr Trp Phe His Val Thr
50                  55                  60                  65

tgc aat cct gag aat aaa gtt act cgt gtt gac ctt ggg aat gca aaa      297
Cys Asn Pro Glu Asn Lys Val Thr Arg Val Asp Leu Gly Asn Ala Lys
                70                  75                  80

cta tct gga aag ttg gtt cca gaa ctt ggt cag ctt tta aac ttg cag      345
Leu Ser Gly Lys Leu Val Pro Glu Leu Gly Gln Leu Leu Asn Leu Gln
                85                  90                  95

tac ttg gag ctt tat agc aat aac att aca ggg gag ata cct gag gag      393
Tyr Leu Glu Leu Tyr Ser Asn Asn Ile Thr Gly Glu Ile Pro Glu Glu
            100                 105                 110

ctt ggc gac ttg gtg gaa cta gta agc ttg gat ctt tac gca aac agc      441
Leu Gly Asp Leu Val Glu Leu Val Ser Leu Asp Leu Tyr Ala Asn Ser
        115                 120                 125

ata agc ggt ccc atc cct tcg tct ctt ggc aaa cta gga aaa ctc cgg      489
Ile Ser Gly Pro Ile Pro Ser Ser Leu Gly Lys Leu Gly Lys Leu Arg
130                 135                 140                 145

ttc ttg cgt ctt aac aac aat agc tta tca ggg gaa att cca atg act      537
Phe Leu Arg Leu Asn Asn Asn Ser Leu Ser Gly Glu Ile Pro Met Thr
                150                 155                 160

ttg act tct gtg cag ctg caa gtt ctg gat atc tca aac aat cgg ctc      585
Leu Thr Ser Val Gln Leu Gln Val Leu Asp Ile Ser Asn Asn Arg Leu
                165                 170                 175

agt gga gat att cct gtt aat ggt tct ttt tcg ctc ttc act cct atc      633
Ser Gly Asp Ile Pro Val Asn Gly Ser Phe Ser Leu Phe Thr Pro Ile
            180                 185                 190

agt ttt gcg aat aat agc tta acg gat ctt ccc gaa cct ccg cct act      681
Ser Phe Ala Asn Asn Ser Leu Thr Asp Leu Pro Glu Pro Pro Pro Thr
```

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tct acc tct cct acg cca cca cca cct tca ggg ggg caa atg act gca    729
Ser Thr Ser Pro Thr Pro Pro Pro Pro Ser Gly Gly Gln Met Thr Ala
210                 215                 220                 225

gca ata gca ggg gga gtt gct gca ggt gca gca ctt cta ttt gct gtt    777
Ala Ile Ala Gly Gly Val Ala Ala Gly Ala Ala Leu Leu Phe Ala Val
                    230                 235                 240

cca gcc att gcg ttt gct tgg tgg ctc aga aga aaa cca cag gac cac    825
Pro Ala Ile Ala Phe Ala Trp Trp Leu Arg Arg Lys Pro Gln Asp His
                245                 250                 255

ttt ttt gat gta cct gct gaa gaa gac cca gag gtt cat tta gga caa    873
Phe Phe Asp Val Pro Ala Glu Glu Asp Pro Glu Val His Leu Gly Gln
                260                 265                 270

ctc aaa agg ttt acc ttg cgt gaa ctg tta gtt gct act gat aac ttt    921
Leu Lys Arg Phe Thr Leu Arg Glu Leu Leu Val Ala Thr Asp Asn Phe
275                 280                 285

agc aat aaa aat gta ttg ggt aga ggt ggt ttt ggt aaa gtg tat aaa    969
Ser Asn Lys Asn Val Leu Gly Arg Gly Gly Phe Gly Lys Val Tyr Lys
290                 295                 300                 305

gga cgt tta gcc gat ggc aat cta gtg gct gtc aaa agg cta aaa gaa   1017
Gly Arg Leu Ala Asp Gly Asn Leu Val Ala Val Lys Arg Leu Lys Glu
                310                 315                 320

gaa cgt acc aag ggt ggg gaa ctg cag ttt caa acc gaa gtt gag atg   1065
Glu Arg Thr Lys Gly Gly Glu Leu Gln Phe Gln Thr Glu Val Glu Met
                325                 330                 335

atc agt atg gcc gtt cat agg aac ttg ctt cgg ctt cgt ggc ttt tgc   1113
Ile Ser Met Ala Val His Arg Asn Leu Leu Arg Leu Arg Gly Phe Cys
                340                 345                 350

atg act cca act gaa aga tta ctt gtt tat ccc tac atg gct aat gga   1161
Met Thr Pro Thr Glu Arg Leu Leu Val Tyr Pro Tyr Met Ala Asn Gly
                355                 360                 365

agt gtt gct tct tgt tta aga gag cgt cct gaa ggc aat cca gca ctt   1209
Ser Val Ala Ser Cys Leu Arg Glu Arg Pro Glu Gly Asn Pro Ala Leu
370                 375                 380                 385

gat tgg cca aaa aga aag cat att gct ctg gga tca gca agg ggg ctt   1257
Asp Trp Pro Lys Arg Lys His Ile Ala Leu Gly Ser Ala Arg Gly Leu
                390                 395                 400

gcg tat tta cat gat cat tgc gac caa aaa atc att cac cgg gat gtt   1305
Ala Tyr Leu His Asp His Cys Asp Gln Lys Ile Ile His Arg Asp Val
                405                 410                 415

aaa gct gct aat ata ttg tta gat gaa gag ttt gaa gct gtt gtt gga   1353
Lys Ala Ala Asn Ile Leu Leu Asp Glu Glu Phe Glu Ala Val Val Gly
                420                 425                 430

gat ttt ggg ctc gca aaa tta atg aat tat aat gac tcc cat gtg aca   1401
Asp Phe Gly Leu Ala Lys Leu Met Asn Tyr Asn Asp Ser His Val Thr
435                 440                 445

act gct gta cgc ggt aca att ggc cat ata gcg ccc gag tac ctc tcg   1449
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Thr Ala Val Arg Gly Thr Ile Gly His Ile Ala Pro Glu Tyr Leu Ser
450             455             460             465

aca gga aaa tct tct gag aag act gat gtt ttt ggg tac ggg gtc atg    1497
Thr Gly Lys Ser Ser Glu Lys Thr Asp Val Phe Gly Tyr Gly Val Met
                470             475             480

ctt ctc gag ctc atc act gga caa aag gct ttc gat ctt gct cgg ctt    1545
Leu Leu Glu Leu Ile Thr Gly Gln Lys Ala Phe Asp Leu Ala Arg Leu
            485             490             495

gca aat gat gat gat atc atg tta ctc gac tgg gtg aaa gag gtt ttg    1593
Ala Asn Asp Asp Asp Ile Met Leu Leu Asp Trp Val Lys Glu Val Leu
            500             505             510

aaa gag aag aag ttg gaa agc ctt gtg gat gca gaa ctc gaa gga aag    1641
Lys Glu Lys Lys Leu Glu Ser Leu Val Asp Ala Glu Leu Glu Gly Lys
    515             520             525

tac gtg gaa aca gaa gtg gag cag ctg ata caa atg gct ctg ctc tgc    1689
Tyr Val Glu Thr Glu Val Glu Gln Leu Ile Gln Met Ala Leu Leu Cys
530             535             540             545

act caa agt tct gca atg gaa cgt cca aag atg tca gaa gta gtg aga    1737
Thr Gln Ser Ser Ala Met Glu Arg Pro Lys Met Ser Glu Val Val Arg
                550             555             560

atg ctg gaa gga gat ggt tta gct gag aga tgg gaa gaa tgg caa aag    1785
Met Leu Glu Gly Asp Gly Leu Ala Glu Arg Trp Glu Glu Trp Gln Lys
            565             570             575

gag gag atg cca ata cat gat ttt aac tat caa gcc tat cct cat gct    1833
Glu Glu Met Pro Ile His Asp Phe Asn Tyr Gln Ala Tyr Pro His Ala
            580             585             590

ggc act gac tgg ctc atc ccc tat tcc aat tcc ctt atc gaa aac gat    1881
Gly Thr Asp Trp Leu Ile Pro Tyr Ser Asn Ser Leu Ile Glu Asn Asp
    595             600             605

tac ccc tcg ggt cca aga taa ccttttagaa agggtctttt cttgtgggtt       1932
Tyr Pro Ser Gly Pro Arg
610             615

cttcaacaag tatatatata gattggtgaa gttttaagat gcaaaaaaaa             1982
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<213> Arabidopsis thaliana

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            20              25              30

Gln Leu Lys Asn Ser Leu Ser Ser Gly Asp Pro Ala Asn Asn Val Leu
        35              40              45
```

Gln Ser Trp Asp Ala Thr Leu Val Thr Pro Cys Thr Trp Phe His Val
    50   55   60

Thr Cys Asn Pro Glu Asn Lys Val Thr Arg Val Asp Leu Gly Asn Ala
65   70   75   80

Lys Leu Ser Gly Lys Leu Val Pro Glu Leu Gly Gln Leu Leu Asn Leu
            85   90   95

Gln Tyr Leu Glu Leu Tyr Ser Asn Asn Ile Thr Gly Glu Ile Pro Glu
        100   105   110

Glu Leu Gly Asp Leu Val Glu Leu Val Ser Leu Asp Leu Tyr Ala Asn
        115   120   125

Ser Ile Ser Gly Pro Ile Pro Ser Ser Leu Gly Lys Leu Gly Lys Leu
    130   135   140

Arg Phe Leu Arg Leu Asn Asn Asn Ser Leu Ser Gly Glu Ile Pro Met
145   150   155   160

Thr Leu Thr Ser Val Gln Leu Gln Val Leu Asp Ile Ser Asn Asn Arg
            165   170   175

Leu Ser Gly Asp Ile Pro Val Asn Gly Ser Phe Ser Leu Phe Thr Pro
        180   185   190

Ile Ser Phe Ala Asn Asn Ser Leu Thr Asp Leu Pro Glu Pro Pro Pro
        195   200   205

Thr Ser Thr Ser Pro Thr Pro Pro Pro Ser Gly Gly Gln Met Thr
    210   215   220

Ala Ala Ile Ala Gly Gly Val Ala Ala Gly Ala Ala Leu Leu Phe Ala
225   230   235   240

Val Pro Ala Ile Ala Phe Ala Trp Trp Leu Arg Arg Lys Pro Gln Asp
            245   250   255

His Phe Phe Asp Val Pro Ala Glu Glu Asp Pro Glu Val His Leu Gly
        260   265   270

Gln Leu Lys Arg Phe Thr Leu Arg Glu Leu Leu Val Ala Thr Asp Asn
        275   280   285

Phe Ser Asn Lys Asn Val Leu Gly Arg Gly Gly Phe Gly Lys Val Tyr

290   295   300

Lys Gly Arg Leu Ala Asp Gly Asn Leu Val Ala Val Lys Arg Leu Lys
305   310   315   320

Glu Glu Arg Thr Lys Gly Gly Glu Leu Gln Phe Gln Thr Glu Val Glu
                        325   330   335

Met Ile Ser Met Ala Val His Arg Asn Leu Leu Arg Leu Arg Gly Phe
                    340   345   350

Cys Met Thr Pro Thr Glu Arg Leu Leu Val Tyr Pro Tyr Met Ala Asn
                    355   360   365

Gly Ser Val Ala Ser Cys Leu Arg Glu Arg Pro Glu Gly Asn Pro Ala
                    370   375   380

Leu Asp Trp Pro Lys Arg Lys His Ile Ala Leu Gly Ser Ala Arg Gly
385   390   395   400

Leu Ala Tyr Leu His Asp His Cys Asp Gln Lys Ile Ile His Arg Asp
                    405   410   415

Val Lys Ala Ala Asn Ile Leu Leu Asp Glu Glu Phe Glu Ala Val Val
                    420   425   430

Gly Asp Phe Gly Leu Ala Lys Leu Met Asn Tyr Asn Asp Ser His Val
                    435   440   445

Thr Thr Ala Val Arg Gly Thr Ile Gly His Ile Ala Pro Glu Tyr Leu
    450   455   460

Ser Thr Gly Lys Ser Ser Glu Lys Thr Asp Val Phe Gly Tyr Gly Val
465   470   475   480

Met Leu Leu Glu Leu Ile Thr Gly Gln Lys Ala Phe Asp Leu Ala Arg
                    485   490   495

Leu Ala Asn Asp Asp Asp Ile Met Leu Leu Asp Trp Val Lys Glu Val
                    500   505   510

Leu Lys Glu Lys Lys Leu Glu Ser Leu Val Asp Ala Glu Leu Glu Gly
                    515   520   525

Lys Tyr Val Glu Thr Glu Val Glu Gln Leu Ile Gln Met Ala Leu Leu
    530   535   540

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Cys Thr Gln Ser Ser Ala Met Glu Arg Pro Lys Met Ser Glu Val Val
545         550         555         560


Arg Met Leu Glu Gly Asp Gly Leu Ala Glu Arg Trp Glu Glu Trp Gln
            565             570             575


Lys Glu Glu Met Pro Ile His Asp Phe Asn Tyr Gln Ala Tyr Pro His
            580             585             590


Ala Gly Thr Asp Trp Leu Ile Pro Tyr Ser Asn Ser Leu Ile Glu Asn
            595             600             605


Asp Tyr Pro Ser Gly Pro Arg
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Leu Gln Gly Arg Arg Glu Ala Lys Lys Ser Tyr Ala Leu Phe Ser Ser
            5               10              15


act ttc ttc ttc ttc ttt atc tgt ttt ctt tct tct tct tct gca gaa       153
Thr Phe Phe Phe Phe Phe Ile Cys Phe Leu Ser Ser Ser Ser Ala Glu
        20              25              30


ctc aca gac aaa gtt gtt gcc tta ata gga atc aaa agc tca ctg act       201
Leu Thr Asp Lys Val Val Ala Leu Ile Gly Ile Lys Ser Ser Leu Thr
    35              40              45


gat cct cat gga gtt cta atg aat tgg gat gac aca gca gtt gat cca       249
Asp Pro His Gly Val Leu Met Asn Trp Asp Asp Thr Ala Val Asp Pro
50              55              60              65


tgt agc tgg aac atg atc act tgt tct gat ggt ttt gtc ata agg cta       297
Cys Ser Trp Asn Met Ile Thr Cys Ser Asp Gly Phe Val Ile Arg Leu
            70              75              80


gaa gct cca agc caa aac tta tca gga act ctt tca tca agt att gga       345
Glu Ala Pro Ser Gln Asn Leu Ser Gly Thr Leu Ser Ser Ser Ile Gly
        85              90              95


aat tta aca aat ctt caa act gta tac agg tta ttg cag aac aat tac       393
Asn Leu Thr Asn Leu Gln Thr Val Tyr Arg Leu Leu Gln Asn Asn Tyr
    100             105             110
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ata aca gga aac atc cct cat gag att ggg aaa ttg atg aaa ctc aaa      441
Ile Thr Gly Asn Ile Pro His Glu Ile Gly Lys Leu Met Lys Leu Lys
    115             120             125

aca ctt gat ctc tct acc aat aac ttc act ggt caa atc cca ttc act      489
Thr Leu Asp Leu Ser Thr Asn Asn Phe Thr Gly Gln Ile Pro Phe Thr
130             135             140             145

ctt tct tac tcc aaa aat ctt cac agg agg gtt aat aat aac agc ctg      537
Leu Ser Tyr Ser Lys Asn Leu His Arg Arg Val Asn Asn Asn Ser Leu
                150             155             160

aca gga aca att cct agc tca ttg gca aac atg acc caa ctc act ttt      585
Thr Gly Thr Ile Pro Ser Ser Leu Ala Asn Met Thr Gln Leu Thr Phe
                165             170             175

ttg gat ttg tcg tat aat aac ttg agt gga cca gtt cca aga tca ctt      633
Leu Asp Leu Ser Tyr Asn Asn Leu Ser Gly Pro Val Pro Arg Ser Leu
                180             185             190

gcc aaa aca ttc aat gtt atg ggc aat tct cag att tgt cca aca gga      681
Ala Lys Thr Phe Asn Val Met Gly Asn Ser Gln Ile Cys Pro Thr Gly
    195             200             205

act gag aaa gac tgt aat ggg act cag cct aag cca atg tca atc acc      729
Thr Glu Lys Asp Cys Asn Gly Thr Gln Pro Lys Pro Met Ser Ile Thr
210             215             220             225

ttg aac agt tct caa aga act aaa aac cgg aaa atc gcg gta gtc ttc      777
Leu Asn Ser Ser Gln Arg Thr Lys Asn Arg Lys Ile Ala Val Val Phe
                230             235             240

ggt gta agc ttg aca tgt gtt tgc ttg ttg atc att ggc ttt ggt ttt      825
Gly Val Ser Leu Thr Cys Val Cys Leu Leu Ile Ile Gly Phe Gly Phe
                245             250             255

ctt ctt tgg tgg aga aga aga cat aac aaa caa gta tta ttc ttt gac      873
Leu Leu Trp Trp Arg Arg Arg His Asn Lys Gln Val Leu Phe Phe Asp
                260             265             270

att aat gag caa aac aag gaa gaa atg tgt cta ggg aat cta agg agg      921
Ile Asn Glu Gln Asn Lys Glu Glu Met Cys Leu Gly Asn Leu Arg Arg
                275             280             285

ttt aat ttc aaa gaa ctt caa tcc gca act agt aac ttc agc agc aag      969
Phe Asn Phe Lys Glu Leu Gln Ser Ala Thr Ser Asn Phe Ser Ser Lys
290             295             300             305

aat ctg gtc gga aaa gga ggg ttt gga aat gtg tat aaa ggt tgt ctt     1017
Asn Leu Val Gly Lys Gly Gly Phe Gly Asn Val Tyr Lys Gly Cys Leu
                310             315             320

cat gat gga agt atc atc gcg gtg aag aga tta aag gat ata aac aat     1065
His Asp Gly Ser Ile Ile Ala Val Lys Arg Leu Lys Asp Ile Asn Asn
                325             330             335

ggt ggt gga gag gtt cag ttt cag aca gag ctt gaa atg ata agc ctt     1113
Gly Gly Gly Glu Val Gln Phe Gln Thr Glu Leu Glu Met Ile Ser Leu
                340             345             350

gcc gtc cac cgg aat ctc ctc cgc tta tac ggt ttc tgt act act tcc     1161
Ala Val His Arg Asn Leu Leu Arg Leu Tyr Gly Phe Cys Thr Thr Ser
    355             360             365
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tct gaa cgg ctt ctc gtt tat cct tac atg tcc aat ggc agt gtc gct        1209
Ser Glu Arg Leu Leu Val Tyr Pro Tyr Met Ser Asn Gly Ser Val Ala
370             375             380             385

tct cgt ctc aaa gct aaa ccg gta ttg gat tgg ggc aca aga aag cga        1257
Ser Arg Leu Lys Ala Lys Pro Val Leu Asp Trp Gly Thr Arg Lys Arg
        390             395             400

ata gca tta gga gca gga aga ggg ttg ctg tat ttg cat gag caa tgt        1305
Ile Ala Leu Gly Ala Gly Arg Gly Leu Leu Tyr Leu His Glu Gln Cys
        405             410             415

gat cca aag atc att cac cgt gat gtc aaa gct gcg aac ata ctt ctt        1353
Asp Pro Lys Ile Ile His Arg Asp Val Lys Ala Ala Asn Ile Leu Leu
        420             425             430

gac gat tac ttt gaa gct gtt gtc gga gat ttc ggg ttg gct aag ctt        1401
Asp Asp Tyr Phe Glu Ala Val Val Gly Asp Phe Gly Leu Ala Lys Leu
        435             440             445

ttg gat cat gag gag tcg cat gtg aca acc gcc gtg aga gga aca gtg        1449
Leu Asp His Glu Glu Ser His Val Thr Thr Ala Val Arg Gly Thr Val
450             455             460             465

ggt cac att gca cct gag tat ctc tca aca gga caa tct tct gag aag        1497
Gly His Ile Ala Pro Glu Tyr Leu Ser Thr Gly Gln Ser Ser Glu Lys
        470             475             480

aca gat gtg ttc ggt ttc ggg att ctt ctt ctc gaa ttg att act gga        1545
Thr Asp Val Phe Gly Phe Gly Ile Leu Leu Leu Glu Leu Ile Thr Gly
        485             490             495

ttg aga gct ctt gaa ttc gga aaa gca gca aac caa aga gga gcg ata        1593
Leu Arg Ala Leu Glu Phe Gly Lys Ala Ala Asn Gln Arg Gly Ala Ile
        500             505             510

ctt gat tgg gta aag aaa cta caa caa gag aag aag cta gaa cag ata        1641
Leu Asp Trp Val Lys Lys Leu Gln Gln Glu Lys Lys Leu Glu Gln Ile
515             520             525

gta gac aag gat ttg aag agc aac tac gat aga ata gaa gtg gaa gaa        1689
Val Asp Lys Asp Leu Lys Ser Asn Tyr Asp Arg Ile Glu Val Glu Glu
530             535             540             545

atg gtt caa gtg gct ttg ctt tgt aca cag tat ctt ccc att cac cgt        1737
Met Val Gln Val Ala Leu Leu Cys Thr Gln Tyr Leu Pro Ile His Arg
        550             555             560

cct aag atg tct gaa gtt gtg aga atg ctt gaa ggc gat ggt ctt gtt        1785
Pro Lys Met Ser Glu Val Val Arg Met Leu Glu Gly Asp Gly Leu Val
        565             570             575

gag aaa tgg gaa gct tct tct cag aga gca gaa acc aat aga agt tac        1833
Glu Lys Trp Glu Ala Ser Ser Gln Arg Ala Glu Thr Asn Arg Ser Tyr
        580             585             590

agt aaa cct aac gag ttt tct tcc tct gaa cgt tat tcg gat ctt aca        1881
Ser Lys Pro Asn Glu Phe Ser Ser Ser Glu Arg Tyr Ser Asp Leu Thr
595             600             605

gat gat tcc tcg gtg ctg gtt caa gcc atg gag tta tca ggt cca aga        1929
Asp Asp Ser Ser Val Leu Val Gln Ala Met Glu Leu Ser Gly Pro Arg
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Ser Thr Phe Phe Phe Phe Phe Ile Cys Phe Leu Ser Ser Ser Ser Ala
            20   25   30

Glu Leu Thr Asp Lys Val Val Ala Leu Ile Gly Ile Lys Ser Ser Leu
        35   40   45

Thr Asp Pro His Gly Val Leu Met Asn Trp Asp Asp Thr Ala Val Asp
    50   55   60

Pro Cys Ser Trp Asn Met Ile Thr Cys Ser Asp Gly Phe Val Ile Arg
65   70   75   80

Leu Glu Ala Pro Ser Gln Asn Leu Ser Gly Thr Leu Ser Ser Ser Ile
                85   90   95

Gly Asn Leu Thr Asn Leu Gln Thr Val Tyr Arg Leu Leu Gln Asn Asn
            100   105   110

Tyr Ile Thr Gly Asn Ile Pro His Glu Ile Gly Lys Leu Met Lys Leu
        115   120   125

Lys Thr Leu Asp Leu Ser Thr Asn Asn Phe Thr Gly Gln Ile Pro Phe
    130   135   140

Thr Leu Ser Tyr Ser Lys Asn Leu His Arg Arg Val Asn Asn Asn Ser
145   150   155   160

Leu Thr Gly Thr Ile Pro Ser Ser Leu Ala Asn Met Thr Gln Leu Thr
                165   170   175

Phe Leu Asp Leu Ser Tyr Asn Asn Leu Ser Gly Pro Val Pro Arg Ser
            180   185   190

Leu Ala Lys Thr Phe Asn Val Met Gly Asn Ser Gln Ile Cys Pro Thr
        195   200   205

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Gly Thr Glu Lys Asp Cys Asn Gly Thr Gln Pro Lys Pro Met Ser Ile
210   215   220

Thr Leu Asn Ser Ser Gln Arg Thr Lys Asn Arg Lys Ile Ala Val Val
225   230   235   240

Phe Gly Val Ser Leu Thr Cys Val Cys Leu Leu Ile Ile Gly Phe Gly
245   250   255

Phe Leu Leu Trp Trp Arg Arg Arg His Asn Lys Gln Val Leu Phe Phe
260   265   270

Asp Ile Asn Glu Gln Asn Lys Glu Glu Met Cys Leu Gly Asn Leu Arg
275   280   285

Arg Phe Asn Phe Lys Glu Leu Gln Ser Ala Thr Ser Asn Phe Ser Ser
290   295   300

Lys Asn Leu Val Gly Lys Gly Gly Phe Gly Asn Val Tyr Lys Gly Cys
305   310   315   320

Leu His Asp Gly Ser Ile Ile Ala Val Lys Arg Leu Lys Asp Ile Asn
325   330   335

Asn Gly Gly Gly Glu Val Gln Phe Gln Thr Glu Leu Glu Met Ile Ser
340   345   350

Leu Ala Val His Arg Asn Leu Leu Arg Leu Tyr Gly Phe Cys Thr Thr
355   360   365

Ser Ser Glu Arg Leu Leu Val Tyr Pro Tyr Met Ser Asn Gly Ser Val
370   375   380

Ala Ser Arg Leu Lys Ala Lys Pro Val Leu Asp Trp Gly Thr Arg Lys
385   390   395   400

Arg Ile Ala Leu Gly Ala Gly Arg Gly Leu Leu Tyr Leu His Glu Gln
405   410   415

Cys Asp Pro Lys Ile Ile His Arg Asp Val Lys Ala Ala Asn Ile Leu
420   425   430

Leu Asp Asp Tyr Phe Glu Ala Val Val Gly Asp Phe Gly Leu Ala Lys
435   440   445

Leu Leu Asp His Glu Glu Ser His Val Thr Thr Ala Val Arg Gly Thr
450   455   460

Val Gly His Ile Ala Pro Glu Tyr Leu Ser Thr Gly Gln Ser Ser Glu
465   470   475   480

Lys Thr Asp Val Phe Gly Phe Gly Ile Leu Leu Leu Glu Leu Ile Thr
                485   490   495

Gly Leu Arg Ala Leu Glu Phe Gly Lys Ala Ala Asn Gln Arg Gly Ala
            500   505   510

Ile Leu Asp Trp Val Lys Lys Leu Gln Gln Glu Lys Lys Leu Glu Gln
            515   520   525

Ile Val Asp Lys Asp Leu Lys Ser Asn Tyr Asp Arg Ile Glu Val Glu
            530   535   540

Glu Met Val Gln Val Ala Leu Leu Cys Thr Gln Tyr Leu Pro Ile His
545   550   555   560

Arg Pro Lys Met Ser Glu Val Val Arg Met Leu Glu Gly Asp Gly Leu
                565   570   575

Val Glu Lys Trp Glu Ala Ser Ser Gln Arg Ala Glu Thr Asn Arg Ser
            580   585   590

Tyr Ser Lys Pro Asn Glu Phe Ser Ser Ser Glu Arg Tyr Ser Asp Leu
            595   600   605

Thr Asp Asp Ser Ser Val Leu Val Gln Ala Met Glu Leu Ser Gly Pro
        610   615   620

Arg
625

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Met Ala Glu Arg Val Tyr Pro Ala Asp Ser Pro Pro Gln Ser Gly Gln
1   5   10   15

Phe Ser Gly Asn Phe Ser Ser Gly Glu Phe Pro Lys Lys Pro Ala Pro
                20   25   30

Pro Pro Ser Thr Tyr Val Ile Gln Val Pro Lys Asp Gln Ile Tyr Arg
            35   40   45

Ile Pro Pro Pro Glu Asn Ala His Arg Phe Glu Gln Leu Ser Arg Lys
    50   55   60

Lys Thr Asn Arg Ser Asn Cys Arg Cys Cys Phe Cys Ser Phe Leu Ala
65   70   75   80

Ala Val Phe Ile Leu Ile Val Leu Ala Gly Ile Ser Phe Ala Val Leu
            85   90   95

Tyr Leu Ile Tyr Arg Pro Glu Ala Pro Lys Tyr Ser Ile Glu Gly Phe
            100   105   110

Ser Val Ser Gly Ile Asn Leu Asn Ser Thr Ser Pro Ile Ser Pro Ser
        115   120   125

Phe Asn Val Thr Val Arg Ser Arg Asn Gly Asn Gly Lys Ile Gly Val
    130   135   140

Tyr Tyr Glu Lys Glu Ser Ser Val Asp Val Tyr Tyr Asn Asp Val Asp
145   150   155   160

Ile Ser Asn Gly Val Met Pro Val Phe Tyr Gln Pro Ala Lys Asn Val
            165   170   175

Thr Val Val Lys Leu Val Leu Ser Gly Ser Lys Ile Gln Leu Thr Ser
            180   185   190

Gly Met Arg Lys Glu Met Arg Asn Glu Val Ser Lys Lys Thr Val Pro
        195   200   205

Phe Lys Leu Lys Ile Lys Ala Pro Val Lys Ile Lys Phe Gly Ser Val
    210   215   220

Lys Thr Trp Thr Met Ile Val Asn Val Asp Cys Asp Val Thr Val Asp
225   230   235   240

Lys Leu Thr Ala Pro Ser Arg Ile Val Ser Arg Lys Cys Ser His Asp
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Val Asp Leu Trp
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1   5   10   15

Gly Phe Leu Thr Asn Lys Asp Val His Arg Ile Lys His Pro Ser Leu
                20   25   30

Asp Thr Asn Asp Ser Ser Ser Ser Arg Tyr Ser Val Asp Ser Gln Lys
            35   40   45

Ser Arg Ile Gly Pro Pro Pro Gly Thr Tyr Val Ile Lys Leu Pro Lys
        50   55   60

Asp Gln Ile Tyr Arg Val Pro Pro Pro Glu Asn Ala His Arg Tyr Glu
65   70   75   80

Tyr Leu Ser Arg Arg Lys Thr Asn Lys Ser Cys Cys Arg Arg Cys Leu
                85   90   95

Cys Tyr Ser Leu Ser Ala Leu Leu Ile Ile Ile Val Leu Ala Ala Ile
            100   105   110

Ala Phe Gly Phe Phe Tyr Leu Val Tyr Gln Pro His Lys Pro Gln Phe
        115   120   125

Ser Val Ser Gly Val Ser Val Thr Gly Ile Asn Leu Thr Ser Ser Ser
    130   135   140

Pro Phe Ser Pro Val Ile Arg Ile Lys Leu Arg Ser Gln Asn Val Lys
145   150   155   160

Gly Lys Leu Gly Leu Ile Tyr Glu Lys Gly Asn Glu Ala Asp Val Phe
                165   170   175

Phe Asn Gly Thr Lys Leu Gly Asn Gly Glu Phe Thr Ala Phe Lys Gln
            180   185   190

Pro Ala Gly Asn Val Thr Val Ile Val Thr Val Leu Lys Gly Ser Ser
        195   200   205

Val Lys Leu Lys Ser Ser Ser Arg Lys Glu Leu Thr Glu Ser Gln Lys
    210   215   220

Lys Gly Lys Val Pro Phe Gly Leu Arg Ile Lys Ala Pro Val Lys Phe
225   230   235   240

Lys Val Gly Ser Val Thr Thr Trp Thr Met Thr Ile Thr Val Asp Cys

                 245   250   255

Lys Ile Thr Val Asp Lys Leu Thr Ala Ser Ala Thr Val Lys Thr Glu
                260   265   270

Asn Cys Glu Thr Gly Leu Ser Leu Leu
        275   280

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1   5   10   15

Thr Ala Arg Pro Thr Ala Pro Leu Val Pro Arg Gly Ser Ser Arg Ser
                20   25   30

Glu His Gly Asp Pro Ser Lys Val Pro Leu Asn Gln Arg Pro Gln Arg
            35   40   45

Phe Val Pro Leu Ala Pro Pro Lys Lys Arg Arg Ser Cys Cys Cys Arg
        50   55   60

Cys Phe Cys Tyr Thr Phe Cys Phe Leu Leu Leu Leu Val Val Ala Val
65   70   75   80

Gly Ala Ser Ile Gly Ile Leu Tyr Leu Val Phe Lys Pro Lys Leu Pro
                85   90   95

Asp Tyr Ser Ile Asp Arg Leu Gln Leu Thr Arg Phe Ala Leu Asn Gln
                100   105   110

Asp Ser Ser Leu Thr Thr Ala Phe Asn Val Thr Ile Thr Ala Lys Asn
            115   120   125

Pro Asn Glu Lys Ile Gly Ile Tyr Tyr Glu Asp Gly Ser Lys Ile Thr
        130   135   140

Val Trp Tyr Met Glu His Gln Leu Ser Asn Gly Ser Leu Pro Lys Phe
145   150   155   160

Tyr Gln Gly His Glu Asn Thr Thr Val Ile Tyr Val Glu Met Thr Gly
                165   170   175

Gln Thr Gln Asn Ala Ser Gly Leu Arg Thr Thr Leu Glu Glu Gln Gln

                    180   185   190

Gln Arg Thr Gly Asn Ile Pro Leu Arg Ile Arg Val Asn Gln Pro Val
        195   200   205

Arg Val Lys Phe Gly Lys Leu Lys Leu Phe Glu Val Arg Phe Leu Val
        210   215   220

Arg Cys Gly Val Phe Val Asp Ser Leu Ala Thr Asn Asn Val Ile Lys
225   230   235   240

Ile Gln Ser Ser Ser Cys Lys Phe Arg Leu Arg Leu
                245   250

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1   5   10   15

Pro His Pro Thr Ala Pro Leu Val Pro Arg Gly Ser Ser Arg Ser Glu
            20   25   30

His Gly Asp Pro Thr Lys Thr Gln Gln Ala Ala Pro Leu Asp Pro Pro
            35   40   45

Arg Glu Lys Lys Gly Ser Arg Ser Cys Trp Cys Arg Cys Val Cys Tyr
        50   55   60

Thr Leu Leu Val Leu Phe Leu Leu Ile Val Ile Val Gly Ala Ile Val
65   70   75   80

Gly Ile Leu Tyr Leu Val Phe Arg Pro Lys Phe Pro Asp Tyr Asn Ile
                85   90   95

Asp Arg Leu Gln Leu Thr Arg Phe Gln Leu Asn Gln Asp Leu Ser Leu
                100   105   110

Ser Thr Ala Phe Asn Val Thr Ile Thr Ala Lys Asn Pro Asn Glu Lys
            115   120   125

Ile Gly Ile Tyr Tyr Glu Asp Gly Ser Lys Ile Ser Val Leu Tyr Met
    130   135   140

Gln Thr Arg Ile Ser Asn Gly Ser Leu Pro Lys Phe Tyr Gln Gly His

145   150   155   160

Glu Asn Thr Thr Ile Ile Leu Val Glu Met Thr Gly Phe Thr Gln Asn
                165   170   175

Ala Thr Ser Leu Met Thr Thr Leu Gln Glu Gln Gln Arg Leu Thr Gly
            180   185   190

Ser Ile Pro Leu Arg Ile Arg Val Thr Gln Pro Val Arg Ile Lys Leu
        195   200   205

Gly Lys Leu Lys Leu Met Lys Val Arg Phe Leu Val Arg Cys Gly Val
    210   215   220

Ser Val Asp Ser Leu Ala Ala Asn Ser Val Ile Arg Val Arg Ser Ser
225   230   235   240

Asn Cys Lys Tyr Arg Phe Arg Leu
                245

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1   5   10   15

Lys Thr Lys Thr Thr Thr Pro Ala Pro Gly Lys Thr Val Leu Leu Pro
            20   25   30

Val Gln Arg Pro Ile Pro Pro Val Ile Pro Ser Lys Asn Arg Asn
            35   40   45

Met Cys Cys Lys Ile Phe Cys Trp Val Leu Ser Leu Leu Val Ile Ala
    50   55   60

Leu Ile Ala Leu Ala Ile Ala Val Ala Val Val Tyr Phe Val Phe His
65   70   75   80

Pro Lys Leu Pro Ser Tyr Glu Val Asn Ser Leu Arg Val Thr Asn Leu
                85   90   95

Gly Ile Asn Leu Asp Leu Ser Leu Ser Ala Glu Phe Lys Val Glu Ile
            100   105   110

Thr Ala Arg Asn Pro Asn Glu Lys Ile Gly Ile Tyr Tyr Glu Lys Gly

115   120   125

Gly His Ile Gly Val Trp Tyr Asp Lys Thr Lys Leu Cys Glu Gly Pro
    130   135   140

Ile Pro Arg Phe Tyr Gln Gly His Arg Asn Val Thr Lys Leu Asn Val
145   150   155   160

Ala Leu Thr Gly Arg Ala Gln Tyr Gly Asn Thr Val Leu Ala Ala Leu
                165   170   175

Gln Gln Gln Gln Gln Thr Gly Arg Val Pro Leu Asp Leu Lys Val Asn
                180   185   190

Ala Pro Val Ala Ile Lys Leu Gly Asn Leu Lys Met Lys Lys Ile Arg
            195   200   205

Ile Leu Gly Ser Cys Lys Leu Val Val Asp Ser Leu Ser Thr Asn Asn
    210   215   220

Asn Ile Asn Ile Lys Ala Ser Asp Cys Ser Phe Lys Ala Lys Leu
225   230   235

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1   5   10   15

Lys Lys Val Ser His Ser His Gly Arg Arg Gly Gly Gly Cys Gly Cys
            20   25   30

Leu Gly Asp Cys Leu Gly Cys Cys Gly Cys Cys Ile Leu Ser Val Ile
            35   40   45

Phe Asn Ile Leu Ile Thr Ile Ala Val Leu Leu Gly Ile Ala Ala Leu
    50   55   60

Ile Ile Trp Leu Ile Phe Arg Pro Asn Ala Ile Lys Phe His Val Thr
65   70   75   80

Asp Ala Lys Leu Thr Glu Phe Thr Leu Asp Pro Thr Asn Asn Leu Arg
                85   90   95

Tyr Asn Leu Asp Leu Asn Phe Thr Ile Arg Asn Pro Asn Arg Arg Ile

Gly Val Tyr Tyr Asp Glu Ile Glu Val Arg Gly Tyr Tyr Gly Asp Gln
          115   120   125

Arg Phe Gly Met Ser Asn Asn Ile Ser Lys Phe Tyr Gln Gly His Lys
    130   135   140

Asn Thr Thr Val Val Gly Thr Lys Leu Val Gly Gln Gln Leu Val Leu
145   150   155   160

Leu Asp Gly Gly Glu Arg Lys Asp Leu Asn Glu Asp Val Asn Ser Gln
              165   170   175

Ile Tyr Arg Ile Asp Ala Lys Leu Arg Leu Lys Ile Arg Phe Lys Phe
          180   185   190

Gly Leu Ile Lys Ser Trp Arg Phe Lys Pro Lys Ile Lys Cys Asp Leu
          195   200   205

Lys Val Pro Leu Thr Ser Asn Ser Thr Ser Gly Phe Val Phe Gln Pro
    210   215   220

Thr Lys Cys Asp Val Asp Phe
225   230

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Gly Ala Pro Pro Val Gly Ser Ile Pro Pro Pro Ala Pro Ala Thr
                20   25   30

Val Thr Ser Asn Gly Thr Thr Asn Gly Met Ala Asn Gln Lys Pro Gln
          35   40   45

Val Tyr Ile Pro Ala Asn Arg Pro Val Tyr Arg Pro Gln Pro Tyr Ser
          50   55   60

Arg Arg His His His Gln Ser Arg Pro Ser Cys Arg Arg Ile Cys Cys
65   70   75   80

Cys Cys Cys Phe Trp Ser Ile Leu Ile Ile Leu Ile Leu Ala Leu Met

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                85                        90                        95
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Thr Ala Ile Ala Ala Thr Ala Met Tyr Val Ile Tyr His Pro Arg Pro
            100   105   110

Pro Ser Phe Ser Val Pro Ser Ile Arg Ile Ser Arg Val Asn Leu Thr
            115   120   125

Thr Ser Ser Asp Ser Ser Val Ser His Leu Ser Ser Phe Phe Asn Phe
    130   135   140

Thr Leu Ile Ser Glu Asn Pro Asn Gln His Leu Ser Phe Ser Tyr Asp
145   150   155   160

Pro Phe Thr Val Thr Val Asn Ser Ala Lys Ser Gly Thr Met Leu Gly
                165   170   175

Asn Gly Thr Val Pro Ala Phe Phe Ser Asp Asn Gly Asn Lys Thr Ser
            180   185   190

Phe His Gly Val Ile Ala Thr Ser Thr Ala Ala Arg Glu Leu Asp Pro
            195   200   205

Asp Glu Ala Lys His Leu Arg Ser Asp Leu Thr Arg Ala Arg Val Gly
    210   215   220

Tyr Glu Ile Glu Met Arg Thr Lys Val Lys Met Ile Met Gly Lys Leu
225   230   235   240

Lys Ser Glu Gly Val Glu Ile Lys Val Thr Cys Glu Gly Phe Glu Gly
                245   250   255

Thr Ile Pro Lys Gly Lys Thr Pro Ile Val Ala Thr Ser Lys Lys Thr
            260   265   270

Lys Cys Lys Ser Asp Leu Ser Val Lys Val Trp Lys Trp Ser Phe
            275   280   285

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Met Thr Asp Asp Arg Val Tyr Pro Ala Ser Lys Pro Pro Ala Ile Val
1   5   10   15

Gly Gly Gly Ala Pro Thr Thr Asn Pro Thr Phe Pro Ala Asn Lys Ala

                  20   25   30

Gln Leu Tyr Asn Ala Asn Arg Pro Ala Tyr Arg Pro Pro Ala Gly Arg
         35   40   45

Arg Arg Thr Ser His Thr Arg Gly Cys Cys Cys Arg Cys Cys Cys Trp
    50   55   60

Thr Ile Phe Val Ile Ile Leu Leu Leu Leu Ile Val Ala Ala Ala Ser
65   70   75   80

Ala Val Val Tyr Leu Ile Tyr Arg Pro Gln Arg Pro Ser Phe Thr Val
             85   90   95

Ser Glu Leu Lys Ile Ser Thr Leu Asn Phe Thr Ser Ala Val Arg Leu
            100   105   110

Thr Thr Ala Ile Ser Leu Ser Val Ile Ala Arg Asn Pro Asn Lys Asn
        115   120   125

Val Gly Phe Ile Tyr Asp Val Thr Asp Ile Thr Leu Tyr Lys Ala Ser
    130   135   140

Thr Gly Gly Asp Asp Asp Val Val Ile Gly Lys Gly Thr Ile Ala Ala
145   150   155   160

Phe Ser His Gly Lys Lys Asn Thr Thr Thr Leu Arg Ser Thr Ile Gly
             165   170   175

Ser Pro Pro Asp Glu Leu Asp Glu Ile Ser Ala Gly Lys Leu Lys Gly
            180   185   190

Asp Leu Lys Ala Lys Lys Ala Val Ala Ile Lys Ile Val Leu Asn Ser
        195   200   205

Lys Val Lys Val Lys Met Gly Ala Leu Lys Thr Pro Lys Ser Gly Ile
    210   215   220

Arg Val Thr Cys Glu Gly Ile Lys Val Val Ala Pro Thr Gly Lys Lys
225   230   235   240

Ala Thr Thr Ala Thr Thr Ser Ala Ala Lys Cys Lys Val Asp Pro Arg
             245   250   255

Phe Lys Ile Trp Lys Ile Thr Phe
             260

<210> 74
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<212> PRT
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<400> 74

Met Gly Ser Lys Gln Pro Tyr Leu Asn Gly Ala Tyr Tyr Gly Pro Ser
1   5   10   15

Ile Pro Pro Pro Pro Lys Ala His Arg Ser Tyr Asn Ser Pro Gly Phe
                20   25   30

Gly Cys Cys Cys Phe Ser Cys Leu Gly Ser Cys Leu Arg Cys Cys Gly
            35   40   45

Cys Cys Ile Leu Ser Leu Ile Cys Asn Ile Leu Ile Ala Val Ala Val
        50   55   60

Ile Leu Gly Val Ala Ala Leu Ile Leu Trp Leu Ile Phe Arg Pro Asn
65   70   75   80

Ala Val Lys Phe Tyr Val Ala Asp Ala Asn Leu Asn Arg Phe Ser Phe
                85   90   95

Asp Pro Asn Asn Asn Leu His Tyr Ser Leu Asp Leu Asn Phe Thr Ile
            100   105   110

Arg Asn Pro Asn Gln Arg Val Gly Val Tyr Tyr Asp Glu Phe Ser Val
            115   120   125

Ser Gly Tyr Tyr Gly Asp Gln Arg Phe Gly Ser Ala Asn Val Ser Ser
        130   135   140

Phe Tyr Gln Gly His Lys Asn Thr Thr Val Ile Leu Thr Lys Ile Glu
145   150   155   160

Gly Gln Asn Leu Val Val Leu Gly Asp Gly Ala Arg Thr Asp Leu Lys
                165   170   175

Asp Asp Glu Lys Ser Gly Ile Tyr Arg Ile Asn Ala Lys Leu Arg Leu
            180   185   190

Ser Val Arg Phe Lys Phe Trp Phe Ile Lys Ser Trp Lys Leu Lys Pro
            195   200   205

Lys Ile Lys Cys Asp Asp Leu Lys Ile Pro Leu Gly Ser Ser Asn Ser
        210   215   220

```
Thr Gly Gly Phe Lys Phe Gln Pro Val Gln Cys Asp Phe Asp Leu Ser
225             230             235             240
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```
Met Glu Gly Pro Arg Arg Pro Pro Ser Ala Thr Ala Pro Asp Ser Asp
1               5               10              15


Asp Asp Lys Pro Asp Asp Pro Pro Ser Val Trp His Arg Pro Thr Ser
            20              25              30


Ser Leu Pro Ala Leu Pro Ser Leu Asp Pro Pro Ser His Gly Ser His
        35              40              45


His Trp Arg Asn His Ser Leu Asn Leu Ser Pro Leu Pro Thr Thr Ser
    50              55              60


Ser Pro Pro Leu Pro Pro Pro Asp Ser Ile Pro Glu Leu Glu Thr Tyr
65              70              75              80


Val Val Gln Val Pro Arg Asp Gln Val Tyr Trp Thr Pro Pro Pro Glu
                85              90              95


His Ala Lys Tyr Val Glu Lys Arg Ser Lys Asn Pro Glu Lys Asn Lys
                100             105             110


Lys Lys Gly Cys Ser Lys Arg Leu Leu Trp Phe Phe Ile Ile Leu Val
            115             120             125


Ile Phe Gly Phe Leu Leu Gly Ala Ile Ile Leu Ile Leu His Phe Ala
    130             135             140


Phe Asn Pro Thr Leu Pro Val Phe Ala Val Glu Arg Leu Thr Val Asn
145             150             155             160


Pro Ser Asn Phe Glu Val Thr Leu Arg Ala Glu Asn Pro Thr Ser Asn
                165             170             175


Met Gly Val Arg Tyr Met Met Glu Lys Asn Gly Val Val Ser Leu Thr
            180             185             190


Tyr Lys Asn Lys Ser Leu Gly Ser Gly Lys Phe Pro Gly Leu Ser Gln
        195             200             205
```

Ala Ala Ser Gly Ser Asp Lys Val Asn Val Lys Leu Asn Gly Ser Thr
210   215   220

Lys Asn Ala Val Val Gln Pro Arg Gly Ser Lys Gln Pro Val Val Leu
225   230   235   240

Met Leu Asn Met Glu Leu Lys Ala Glu Tyr Glu Ala Gly Pro Val Lys
                245   250   255

Arg Asn Lys Glu Val Val Val Thr Cys Asp Val Lys Val Lys Gly Leu
            260   265   270

Leu Asp Ala Lys Lys Val Glu Ile Val Ser Glu Asn Cys Glu Ser Glu
        275   280   285

Phe Lys Asn
    290

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<211> 207
<212> PRT
<213> Arabidopsis thaliana

<400> 76

Met Cys His Lys Pro Lys Leu Glu Leu Met Pro Met Glu Thr Ser Pro
1   5   10   15

Ala Gln Pro Leu Arg Arg Pro Ser Leu Ile Cys Tyr Ile Phe Leu Val
            20   25   30

Ile Leu Thr Leu Ile Phe Met Ala Ala Val Gly Phe Leu Ile Thr Trp
        35   40   45

Leu Glu Thr Lys Pro Lys Lys Leu Arg Tyr Thr Val Glu Asn Ala Ser
    50   55   60

Val Gln Asn Phe Asn Leu Thr Asn Asp Asn His Met Ser Ala Thr Phe
65   70   75   80

Gln Phe Thr Ile Gln Ser His Asn Pro Asn His Arg Ile Ser Val Tyr
                85   90   95

Tyr Ser Ser Val Glu Ile Phe Val Lys Phe Lys Asp Gln Thr Leu Ala
            100   105   110

Phe Asp Thr Val Glu Pro Phe His Gln Pro Arg Met Asn Val Lys Gln
        115   120   125

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```
Ile Asp Glu Thr Leu Ile Ala Glu Asn Val Ala Val Ser Lys Ser Asn
    130             135             140

Gly Lys Asp Leu Arg Ser Gln Asn Ser Leu Gly Lys Ile Gly Phe Glu
145             150             155             160

Val Phe Val Lys Ala Arg Val Arg Phe Lys Val Gly Ile Trp Lys Ser
                165             170             175

Ser His Arg Thr Ala Lys Ile Lys Cys Ser His Val Thr Val Ser Leu
                180             185             190

Ser Gln Pro Asn Lys Ser Gln Asn Ser Ser Cys Asp Ala Asp Ile
            195             200             205
```

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<400> 77

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Met Ala Ala Glu Gln Pro Leu Asn Gly Ala Phe Tyr Gly Pro Ser Val
1               5               10              15

Pro Pro Pro Ala Pro Lys Gly Tyr Tyr Arg Arg Gly His Gly Arg Gly
            20              25              30

Cys Gly Cys Cys Leu Leu Ser Leu Phe Val Lys Val Ile Ile Ser Leu
            35              40              45

Ile Val Ile Leu Gly Val Ala Ala Leu Ile Phe Trp Leu Ile Val Arg
    50              55              60

Pro Arg Ala Ile Lys Phe His Val Thr Asp Ala Ser Leu Thr Arg Phe
65              70              75              80

Asp His Thr Ser Pro Asp Asn Ile Leu Arg Tyr Asn Leu Ala Leu Thr
                85              90              95

Val Pro Val Arg Asn Pro Asn Lys Arg Ile Gly Leu Tyr Tyr Asp Arg
                100             105             110

Ile Glu Ala His Ala Tyr Tyr Glu Gly Lys Arg Phe Ser Thr Ile Thr
            115             120             125

Leu Thr Pro Phe Tyr Gln Gly His Lys Asn Thr Thr Val Leu Thr Pro
    130             135             140
```

Thr Phe Gln Gly Gln Asn Leu Val Ile Phe Asn Ala Gly Gln Ser Arg
145   150   155   160

Thr Leu Asn Ala Glu Arg Ile Ser Gly Val Tyr Asn Ile Glu Ile Lys
                165   170   175

Phe Arg Leu Arg Val Arg Phe Lys Leu Gly Asp Leu Lys Phe Arg Arg
            180   185   190

Ile Lys Pro Lys Val Asp Cys Asp Asp Leu Arg Leu Pro Leu Ser Thr
            195   200   205

Ser Asn Gly Thr Thr Thr Thr Ser Thr Val Phe Pro Ile Lys Cys Asp
    210   215   220

Phe Asp Phe
225

<210>   78
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<213>   Arabidopsis thaliana

<400>   78

Met Ala Asp Tyr Gln Met Asn Pro Val Leu Gln Lys Pro Pro Gly Tyr
1   5   10   15

Arg Asp Pro Asn Met Ser Ser Pro Pro Pro Pro Pro Pro Ile Gln
            20   25   30

Gln Gln Pro Met Arg Lys Ala Val Pro Met Pro Thr Ser Tyr Arg Pro
            35   40   45

Lys Lys Lys Arg Arg Ser Cys Cys Arg Phe Cys Cys Cys Cys Ile Cys
    50   55   60

Ile Thr Leu Val Leu Phe Ile Phe Leu Leu Leu Val Gly Thr Ala Val
65   70   75   80

Phe Tyr Leu Trp Phe Asp Pro Lys Leu Pro Thr Phe Ser Leu Ala Ser
            85   90   95

Phe Arg Leu Asp Gly Phe Lys Leu Ala Asp Asp Pro Asp Gly Ala Ser
            100   105   110

Leu Ser Ala Thr Ala Val Ala Arg Val Glu Met Lys Asn Pro Asn Ser
        115   120   125

Lys Leu Val Phe Tyr Tyr Gly Asn Thr Ala Val Asp Leu Ser Val Gly
    130   135   140

Ser Gly Asn Asp Glu Thr Gly Met Gly Glu Thr Thr Met Asn Gly Phe
145   150   155   160

Arg Gln Gly Pro Lys Asn Ser Thr Ser Val Lys Val Glu Thr Thr Val
                165   170   175

Lys Asn Gln Leu Val Glu Arg Gly Leu Ala Lys Arg Leu Ala Ala Lys
            180   185   190

Phe Gln Ser Lys Asp Leu Val Ile Asn Val Val Ala Lys Thr Lys Val
        195   200   205

Gly Leu Gly Val Gly Gly Ile Lys Ile Gly Met Leu Ala Val Asn Leu
    210   215   220

Arg Cys Gly Gly Val Ser Leu Asn Lys Leu Asp Thr Asp Ser Pro Lys
225   230   235   240

Cys Ile Leu Asn Thr Leu Lys Trp Tyr Lys Ile Ile Ser Asn
                245   250

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<400> 79

Met Thr Pro Asp Arg Thr Thr Ile Pro Ile Arg Thr Ser Pro Val Pro
1   5   10   15

Arg Ala Gln Pro Met Lys Arg His His Ser Ala Ser Tyr Tyr Ala His
                20   25   30

Arg Val Arg Glu Ser Leu Ser Thr Arg Ile Ser Lys Phe Ile Cys Ala
            35   40   45

Met Phe Leu Leu Val Leu Phe Phe Val Gly Val Ile Ala Phe Ile Leu
    50   55   60

Trp Leu Ser Leu Arg Pro His Arg Pro Arg Phe His Ile Gln Asp Phe
65   70   75   80

Val Val Gln Gly Leu Asp Gln Pro Thr Gly Val Glu Asn Ala Arg Ile
                85   90   95

```
Ala Phe Asn Val Thr Ile Leu Asn Pro Asn Gln His Met Gly Val Tyr
            100             105             110

Phe Asp Ser Met Glu Gly Ser Ile Tyr Tyr Lys Asp Gln Arg Val Gly
            115             120             125

Leu Ile Pro Leu Leu Asn Pro Phe Phe Gln Gln Pro Thr Asn Thr Thr
    130             135             140

Ile Val Thr Gly Thr Leu Thr Gly Ala Ser Leu Thr Val Asn Ser Asn
145             150             155             160

Arg Trp Thr Glu Phe Ser Asn Asp Arg Ala Gln Gly Thr Val Gly Phe
                165             170             175

Arg Leu Asp Ile Val Ser Thr Ile Arg Phe Lys Leu His Arg Trp Ile
            180             185             190

Ser Lys His His Arg Met His Ala Asn Cys Asn Ile Val Val Gly Arg
        195             200             205

Asp Gly Leu Ile Leu Pro Lys Phe Asn His Lys Arg Cys Pro Val Tyr
    210             215             220

Phe Thr
225


<210>   80
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<212>   PRT
<213>   Arabidopsis thaliana

<400>   80

Met Ala Asn Gly Leu Asn Gly Ala Ser Tyr Gly Pro Pro Ile Lys Pro
1           5               10              15

Pro Val Lys Thr Tyr Tyr Ser His Gly Arg Arg Gly Ser Asp Val Gly
            20              25              30

Cys Gly Ile Cys Gly Cys Phe Ser Ser Cys Leu Leu Cys Cys Gly Gly
        35              40              45

Cys Leu Val Asn Ile Ile Cys Asn Ile Leu Ile Gly Val Leu Val Cys
    50              55              60

Leu Gly Val Val Ala Leu Ile Leu Trp Phe Ile Leu Arg Pro Asn Val
65              70              75              80
```

```
Val Lys Phe Gln Val Thr Glu Ala Asp Leu Thr Arg Phe Glu Phe Asp
             85               90               95
```

```
Pro Arg Ser His Asn Leu His Tyr Asn Ile Ser Leu Asn Phe Ser Ile
            100               105               110
```

```
Arg Asn Pro Asn Gln Arg Leu Gly Ile His Tyr Asp Gln Leu Glu Val
        115               120               125
```

```
Arg Gly Tyr Tyr Gly Asp Gln Arg Phe Ser Ala Ala Asn Met Thr Ser
    130               135               140
```

```
Phe Tyr Gln Gly His Lys Asn Thr Thr Val Val Gly Thr Glu Leu Asn
145               150               155               160
```

```
Gly Gln Lys Leu Val Leu Leu Gly Ala Gly Gly Arg Arg Asp Phe Arg
                165               170               175
```

```
Glu Asp Arg Arg Ser Gly Val Tyr Arg Ile Asp Val Lys Leu Arg Phe
            180               185               190
```

```
Lys Leu Arg Phe Lys Phe Gly Phe Leu Asn Ser Trp Ala Val Arg Pro
            195               200               205
```

```
Lys Ile Lys Cys His Leu Lys Val Pro Leu Ser Thr Ser Ser Ser Asp
    210               215               220
```

```
Glu Arg Phe Gln Phe His Pro Thr Lys Cys His Val Asp Leu
225               230               235
```

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<210>   81
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<212>   PRT
<213>   Arabidopsis thaliana

<400>   81
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```
Met Gln Asp Pro Ser Arg Pro Ala Thr Gly Tyr Pro Tyr Pro Tyr Pro
1               5               10               15
```

```
Tyr Pro Asn Pro Gln Gln Gln Pro Pro Thr Asn Gly Tyr Pro Asn
            20               25               30
```

```
Pro Ala Ala Gly Thr Ala Tyr Pro Tyr Gln Asn His Asn Pro Tyr Tyr
        35               40               45
```

```
Ala Pro Gln Pro Asn Pro Arg Ala Val Ile Ile Arg Arg Leu Phe Ile
    50               55               60
```

Val Phe Thr Thr Phe Leu Leu Leu Gly Leu Ile Leu Phe Ile Phe
65   70   75   80

Phe Leu Ile Val Arg Pro Gln Leu Pro Asp Val Asn Leu Asn Ser Leu
                85   90   95

Ser Val Ser Asn Phe Asn Val Ser Asn Asn Gln Val Ser Gly Lys Trp
            100   105   110

Asp Leu Gln Leu Gln Phe Arg Asn Pro Asn Ser Lys Met Ser Leu His
        115   120   125

Tyr Glu Thr Ala Leu Cys Ala Met Tyr Tyr Asn Arg Val Ser Leu Ser
    130   135   140

Glu Thr Arg Leu Gln Pro Phe Asp Gln Gly Lys Lys Asp Gln Thr Val
145   150   155   160

Val Asn Ala Thr Leu Ser Val Ser Gly Thr Tyr Val Asp Gly Arg Leu
                165   170   175

Val Asp Ser Ile Gly Lys Glu Arg Ser Val Lys Gly Asn Val Glu Phe
            180   185   190

Asp Leu Arg Met Ile Ser Tyr Val Thr Phe Arg Tyr Gly Ala Phe Arg
        195   200   205

Arg Arg Arg Tyr Val Thr Val Tyr Cys Asp Asp Val Ala Val Gly Val
    210   215   220

Pro Val Ser Ser Gly Glu Gly Lys Met Val Gly Ser Ser Lys Arg Cys
225   230   235   240

Lys Thr Tyr

<210>   82
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<212>   PRT
<213>   Arabidopsis thaliana

<400>   82

Met Gly Glu Gly Glu Ala Lys Ala Glu His Ala Ala Lys Ala Asp His
1   5   10   15

Lys Asn Ala Pro Ser Ala Ser Ser Thr Pro Glu Ser Tyr Ser Lys Glu
                20   25   30

```
Gly Gly Gly Gly Gly Gly Asp Ala Arg Arg Ala Ile Cys Gly Ala Ile
        35              40              45

Phe Thr Ile Leu Val Ile Leu Gly Ile Ile Ala Leu Ile Leu Trp Leu
    50              55              60

Val Tyr Arg Pro His Lys Pro Arg Leu Thr Val Val Gly Ala Ala Ile
65              70              75              80

Tyr Asp Leu Asn Phe Thr Ala Pro Pro Leu Ile Ser Thr Ser Val Gln
            85              90              95

Phe Ser Val Leu Ala Arg Asn Pro Asn Arg Arg Val Ser Ile His Tyr
            100             105             110

Asp Lys Leu Ser Met Tyr Val Thr Tyr Lys Asp Gln Ile Ile Thr Pro
        115             120             125

Pro Leu Pro Leu Pro Pro Leu Arg Leu Gly His Lys Ser Thr Val Val
    130             135             140

Ile Ala Pro Val Met Gly Gly Asn Gly Ile Pro Val Ser Pro Glu Val
145             150             155             160

Ala Asn Gly Leu Lys Asn Asp Glu Ala Tyr Gly Val Val Leu Met Arg
            165             170             175

Val Val Ile Phe Gly Arg Leu Arg Trp Lys Ala Gly Ala Ile Lys Thr
            180             185             190

Gly Arg Tyr Gly Phe Tyr Ala Arg Cys Asp Val Trp Leu Arg Phe Asn
        195             200             205

Pro Ser Ser Asn Gly Gln Val Pro Leu Leu Ala Pro Ser Thr Cys Lys
    210             215             220

Val Asp Val
225
```

```
<210>   83
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<213>   Arabidopsis thaliana

<400>   83
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```
Met Thr Gly Arg Tyr Cys Asp Gln His Asn Gly Tyr Glu Glu Arg Arg
1           5               10              15
```

```
Met Arg Met Met Met Arg Arg Ile Ala Trp Ala Cys Leu Gly Leu Ile
         20              25              30

Val Ala Val Ala Phe Val Val Phe Leu Val Trp Ala Ile Leu His Pro
         35              40              45

His Gly Pro Arg Phe Val Leu Gln Asp Val Thr Ile Asn Asp Phe Asn
     50              55              60

Val Ser Gln Pro Asn Phe Leu Ser Ser Asn Leu Gln Val Thr Val Ser
65               70              75              80

Ser Arg Asn Pro Asn Asp Lys Ile Gly Ile Phe Tyr Asp Arg Leu Asp
             85              90              95

Ile Tyr Val Thr Tyr Arg Asn Gln Glu Val Thr Leu Ala Arg Leu Leu
             100             105             110

Pro Ser Thr Tyr Gln Gly His Leu Glu Val Thr Val Trp Ser Pro Phe
         115             120             125

Leu Ile Gly Ser Ala Val Pro Val Ala Pro Tyr Leu Ser Ser Ala Leu
     130             135             140

Asn Glu Asp Leu Phe Ala Gly Leu Val Leu Leu Asn Ile Lys Ile Asp
145             150             155             160

Gly Trp Val Arg Trp Lys Val Gly Ser Trp Val Ser Gly Ser Tyr Arg
             165             170             175

Leu His Val Asn Cys Pro Ala Phe Ile Thr Val Thr Gly Lys Leu Thr
             180             185             190

Gly Thr Gly Pro Ala Ile Lys Tyr Gln Leu Val Gln Arg Cys Ala Val
         195             200             205

Asp Val
     210
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<210> 84
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<213> Arabidopsis thaliana

<400> 84

```
Met His Asn Lys Val Asp Ser Leu Pro Val Arg Ser Asn Pro Ser Thr
1               5               10              15
```

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Arg Pro Ile Ser Arg His His Ser Ala Ser Asn Ile Val His Arg Val
20 25 30

Lys Glu Ser Leu Thr Thr Arg Val Ser Lys Leu Ile Cys Ala Ile Phe
35 40 45

Leu Ser Leu Leu Leu Cys Leu Gly Ile Ile Thr Phe Ile Leu Trp Ile
50 55 60

Ser Leu Gln Pro His Arg Pro Arg Val His Ile Arg Gly Phe Ser Ile
65 70 75 80

Ser Gly Leu Ser Arg Pro Asp Gly Phe Glu Thr Ser His Ile Ser Phe
85 90 95

Lys Ile Thr Ala His Asn Pro Asn Gln Asn Val Gly Ile Tyr Tyr Asp
100 105 110

Ser Met Glu Gly Ser Val Tyr Tyr Lys Glu Lys Arg Ile Gly Ser Thr
115 120 125

Lys Leu Thr Asn Pro Phe Tyr Gln Asp Pro Lys Asn Thr Ser Ser Ile
130 135 140

Asp Gly Ala Leu Ser Arg Pro Ala Met Ala Val Asn Lys Asp Arg Trp
145 150 155 160

Met Glu Met Glu Arg Asp Arg Asn Gln Gly Lys Ile Met Phe Arg Leu
165 170 175

Lys Val Arg Ser Met Ile Arg Phe Lys Val Tyr Thr Trp His Ser Lys
180 185 190

Ser His Lys Met Tyr Ala Ser Cys Tyr Ile Glu Ile Gly Trp Asp Gly
195 200 205

Met Leu Leu Ser Ala Thr Lys Asp Lys Arg Cys Pro Val Tyr Phe Thr
210 215 220

<210> 85
<211> 208
<212> PRT
<213> Arabidopsis thaliana

<400> 85

Met Ser Lys Asp Cys Gly Asn His Gly Gly Gly Lys Glu Val Val Val
1 5 10 15

```
Arg Lys Leu Cys Ala Ala Ile Ile Ala Phe Ile Val Ile Val Leu Ile
            20              25                  30

Thr Ile Phe Leu Val Trp Val Ile Leu Arg Pro Thr Lys Pro Arg Phe
            35              40              45

Val Leu Gln Asp Ala Thr Val Tyr Ala Phe Asn Leu Ser Gln Pro Asn
    50              55              60

Leu Leu Thr Ser Asn Phe Gln Val Thr Ile Ala Ser Arg Asn Pro Asn
65              70              75              80

Ser Lys Ile Gly Ile Tyr Tyr Asp Arg Leu His Val Tyr Ala Thr Tyr
                85              90              95

Met Asn Gln Gln Ile Thr Leu Arg Thr Ala Ile Pro Pro Thr Tyr Gln
            100             105             110

Gly His Lys Glu Val Asn Val Trp Ser Pro Phe Val Tyr Gly Thr Ala
            115             120             125

Val Pro Ile Ala Pro Tyr Asn Ser Val Ala Leu Gly Glu Glu Lys Asp
    130             135             140

Arg Gly Phe Val Gly Leu Met Ile Arg Ala Asp Gly Thr Val Arg Trp
145             150             155             160

Lys Val Arg Thr Leu Ile Thr Gly Lys Tyr His Ile His Val Arg Cys
            165             170             175

Gln Ala Phe Ile Asn Leu Gly Asn Lys Ala Ala Gly Val Leu Val Gly
            180             185             190

Asp Asn Ala Val Lys Tyr Thr Leu Ala Asn Lys Cys Ser Val Asn Val
    195             200             205
```

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<210>   86
<211>   213
<212>   PRT
<213>   Arabidopsis thaliana

<400>   86
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Met Ser Gln Ile Ser Ile Thr Ser Pro Lys His Cys Ala Lys Lys Gly
1               5               10              15

Gly Ile Asn Ile Asn Asn Arg His Lys Lys Leu Phe Phe Thr Phe Ser
            20              25              30
```

```
Thr Phe Phe Ser Gly Leu Leu Leu Ile Ile Phe Leu Val Trp Leu Ile
        35                  40                  45

Leu His Pro Glu Arg Pro Glu Phe Ser Leu Thr Glu Ala Asp Ile Tyr
    50                  55                  60

Ser Leu Asn Leu Thr Thr Ser Ser Thr His Leu Leu Asn Ser Ser Val
65                  70                  75                  80

Gln Leu Thr Leu Phe Ser Lys Asn Pro Asn Lys Lys Val Gly Ile Tyr
                85                  90                  95

Tyr Asp Lys Leu Leu Val Tyr Ala Ala Tyr Arg Gly Gln Gln Ile Thr
            100                 105                 110

Ser Glu Ala Ser Leu Pro Pro Phe Tyr Gln Ser His Glu Glu Ile Asn
        115                 120                 125

Leu Leu Thr Ala Phe Leu Gln Gly Thr Glu Leu Pro Val Ala Gln Ser
    130                 135                 140

Phe Gly Tyr Gln Ile Ser Arg Glu Arg Ser Thr Gly Lys Ile Ile Ile
145                 150                 155                 160

Gly Met Lys Met Asp Gly Lys Leu Arg Trp Lys Ile Gly Thr Trp Val
            165                 170                 175

Ser Gly Ala Tyr Arg Phe Asn Val Asn Cys Leu Ala Ile Val Ala Phe
            180                 185                 190

Gly Met Asn Met Thr Thr Pro Pro Leu Ala Ser Leu Gln Gly Thr Arg
            195                 200                 205

Cys Ser Thr Thr Ile
        210
```

<210> 87
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<212> PRT
<213> Arabidopsis thaliana

<400> 87

```
Met Ala Gly Glu Thr Leu Leu Lys Pro Val Leu Gln Lys Pro Pro Gly
1               5                   10                  15

Tyr Arg Glu Leu His Ser Gln Pro Gln Thr Pro Leu Gly Ser Ser Ser
            20                  25                  30
```

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Ser Ser Ser Ser Met Leu Arg Arg Pro Pro Lys His Ala Ile Pro Ala
        35   40   45

Ala Phe Tyr Pro Thr Lys Lys Arg Gln Trp Ser Arg Cys Arg Val Phe
    50   55   60

Cys Cys Cys Val Cys Ile Thr Val Ala Ile Val Ile Leu Leu Leu Ile
65   70   75   80

Leu Thr Val Ser Val Phe Phe Leu Tyr Tyr Ser Pro Arg Leu Pro Val
                85   90   95

Val Arg Leu Ser Ser Phe Arg Val Ser Asn Phe Asn Phe Ser Gly Gly
            100   105   110

Lys Ala Gly Asp Gly Leu Ser Gln Leu Thr Ala Glu Ala Thr Ala Arg
            115   120   125

Leu Asp Phe Arg Asn Pro Asn Gly Lys Leu Arg Tyr Tyr Tyr Gly Asn
    130   135   140

Val Asp Val Ala Val Ser Val Gly Glu Asp Asp Phe Glu Thr Ser Leu
145   150   155   160

Gly Ser Thr Lys Val Lys Gly Phe Val Glu Lys Pro Gly Asn Arg Thr
                165   170   175

Val Val Ile Val Pro Ile Lys Val Lys Lys Gln Gln Val Asp Asp Pro
            180   185   190

Thr Val Lys Arg Leu Arg Ala Asp Met Lys Ser Lys Lys Leu Val Val
        195   200   205

Lys Val Met Ala Lys Thr Lys Val Gly Leu Gly Val Gly Arg Arg Lys
    210   215   220

Ile Val Thr Val Gly Val Thr Ile Ser Cys Gly Gly Val Arg Leu Gln
225   230   235   240

Thr Leu Asp Ser Lys Met Ser Lys Cys Thr Ile Lys Met Leu Lys Trp
                245   250   255

Tyr Val Pro Ile Gln Val Lys Cys Ile
                260   265

<210>   88
<211>   210
<212>   PRT

Page 141

<213> Arabidopsis thaliana

<400> 88

```
Met Thr Thr Lys Asp Cys Gly Asn His Gly Gly Gly Gly Gly Gly
1               5               10              15

Thr Ala Ser Arg Ile Cys Gly Val Ile Ile Gly Phe Ile Ile Ile Val
            20              25              30

Leu Ile Thr Ile Phe Leu Val Trp Ile Ile Leu Gln Pro Thr Lys Pro
        35              40              45

Arg Phe Ile Leu Gln Asp Ala Thr Val Tyr Ala Phe Asn Leu Ser Gln
    50              55              60

Pro Asn Leu Leu Thr Ser Asn Phe Gln Ile Thr Ile Ala Ser Arg Asn
65              70              75              80

Arg Asn Ser Arg Ile Gly Ile Tyr Tyr Asp Arg Leu His Val Tyr Ala
            85              90              95

Thr Tyr Arg Asn Gln Gln Ile Thr Leu Arg Thr Ala Ile Pro Pro Thr
            100             105             110

Tyr Gln Gly His Lys Glu Asp Asn Val Trp Ser Pro Phe Val Tyr Gly
        115             120             125

Asn Ser Val Pro Ile Ala Pro Phe Asn Ala Val Ala Leu Gly Asp Glu
    130             135             140

Gln Asn Arg Gly Phe Val Thr Leu Ile Ile Arg Ala Asp Gly Arg Val
145             150             155             160

Arg Trp Lys Val Gly Thr Leu Ile Thr Gly Lys Tyr His Leu His Val
            165             170             175

Arg Cys Gln Ala Phe Ile Asn Leu Ala Asp Lys Ala Ala Gly Val His
        180             185             190

Val Gly Glu Asn Ala Val Lys Tyr Met Leu Ile Asn Lys Cys Ser Val
        195             200             205

Asn Val
    210
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<210> 89
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<212> PRT

<213> Arabidopsis thaliana

<400> 89

Met Pro Ser Pro Pro Glu Glu Glu Thr Gln Pro Lys Pro Asp Thr Gly
1   5   10   15

Pro Gly Gln Asn Ser Glu Arg Asp Ile Asn Gln Pro Pro Pro Pro Pro
            20   25   30

Pro Gln Ser Gln Pro Pro Pro Gln Thr Gln Gln Gln Thr Tyr Pro
            35   40   45

Pro Val Met Gly Tyr Pro Gly Tyr His Gln Pro Pro Pro Pro Tyr Pro
        50   55   60

Asn Tyr Pro Asn Ala Pro Tyr Gln Gln Tyr Pro Tyr Ala Gln Ala Pro
65   70   75   80

Pro Ala Ser Tyr Tyr Gly Ser Ser Tyr Pro Ala Gln Gln Asn Pro Val
                85   90   95

Tyr Gln Arg Pro Ala Ser Ser Gly Phe Val Arg Gly Ile Phe Thr Gly
            100   105   110

Leu Ile Val Leu Val Val Leu Leu Cys Ile Ser Thr Thr Ile Thr Trp
            115   120   125

Leu Val Leu Arg Pro Gln Ile Pro Leu Phe Ser Val Asn Asn Phe Ser
    130   135   140

Val Ser Asn Phe Asn Val Thr Gly Pro Val Phe Ser Ala Gln Trp Thr
145   150   155   160

Ala Asn Leu Thr Ile Glu Asn Gln Asn Thr Lys Leu Lys Gly Tyr Phe
                165   170   175

Asp Arg Ile Gln Gly Leu Val Tyr His Gln Asn Ala Val Gly Glu Asp
            180   185   190

Glu Phe Leu Ala Thr Ala Phe Phe Gln Pro Val Phe Val Glu Thr Lys
        195   200   205

Lys Ser Val Val Ile Gly Glu Thr Leu Thr Ala Gly Asp Lys Glu Gln
    210   215   220

Pro Lys Val Pro Ser Trp Val Val Asp Glu Met Lys Lys Glu Arg Glu
225   230   235   240

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Thr Gly Thr Val Thr Phe Ser Leu Arg Met Ala Val Trp Val Thr Phe
            245   250   255

Lys Thr Asp Gly Trp Ala Ala Arg Glu Ser Gly Leu Lys Val Phe Cys
            260   265   270

Gly Lys Leu Lys Val Gly Phe Glu Gly Ile Ser Gly Asn Gly Ala Val
            275   280   285

Leu Leu Pro Lys Pro Leu Pro Cys Val Val Tyr Val
    290   295   300

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Met Thr Thr Lys Glu Cys Gly Asn His Gly Gly Gly Gly Gly Gly Gly
1   5   10   15

Gly Thr Ala Cys Arg Ile Cys Gly Ala Ile Ile Gly Phe Ile Ile Ile
            20   25   30

Val Leu Met Thr Ile Phe Leu Val Trp Ile Ile Leu Gln Pro Lys Asn
        35   40   45

Pro Glu Phe Ile Leu Gln Asp Thr Thr Val Tyr Ala Phe Asn Leu Ser
    50   55   60

Gln Pro Asn Leu Leu Thr Ser Lys Phe Gln Ile Thr Ile Ala Ser Arg
65   70   75   80

Asn Arg Asn Ser Asn Ile Gly Ile Tyr Tyr Asp His Leu His Ala Tyr
            85   90   95

Ala Ser Tyr Arg Asn Gln Gln Ile Thr Leu Ala Ser Asp Leu Pro Pro
            100   105   110

Thr Tyr Gln Arg His Lys Glu Asp Ser Val Trp Ser Pro Leu Leu Tyr
            115   120   125

Gly Asn Gln Val Pro Ile Ala Pro Phe Asn Ala Val Ala Leu Gly Asp
    130   135   140

Glu Gln Asn Ser Gly Val Phe Thr Leu Thr Ile Cys Val Asp Gly Gln
145   150   155   160

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Val Arg Trp Lys Val Gly Thr Leu Thr Ile Gly Asn Tyr His Leu His
           165   170   175

Val Arg Cys Gln Ala Phe Ile Asn Gln Ala Asp Lys Ala Ala Gly Val
           180   185   190

His Val Gly Glu Asn Thr Val Lys Tyr Thr Leu Ile Asn Lys Cys Ser
           195   200   205

Val Asn Phe
           210

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Met Thr Thr Lys Glu Cys Gly Asn His Gly Gly Gly Gly Gly Gly Gly
1   5   10   15

Gly Thr Ala Cys Arg Ile Cys Gly Ala Ile Ile Gly Phe Ile Ile Ile
           20   25   30

Val Leu Met Thr Ile Phe Leu Val Ser Ile Ile Leu Gln Pro Lys Lys
           35   40   45

Pro Glu Phe Ile Leu Gln Asp Thr Thr Val Tyr Ala Phe Asn Leu Ser
           50   55   60

Gln Pro Asn Leu Leu Thr Ser Lys Phe Gln Ile Thr Ile Ala Ser Arg
65   70   75   80

Asn Arg Asn Ser Asn Ile Gly Ile Tyr Tyr Asp His Leu His Ala Tyr
           85   90   95

Ala Ser Tyr Arg Asn Gln Gln Ile Thr Leu Ala Ser Asp Leu Pro Pro
           100   105   110

Thr Tyr Gln Arg His Lys Glu Asn Ser Val Trp Ser Pro Leu Leu Tyr
           115   120   125

Gly Asn Gln Val Pro Ile Ala Pro Phe Asn Ala Val Ala Leu Gly Asp
           130   135   140

Glu Gln Asn Ser Gly Val Phe Thr Leu Thr Ile Cys Val Asp Gly Arg
145   150   155   160

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Val Arg Trp Lys Val Gly Thr Leu Thr Ile Gly Asn Tyr His Leu His
            165             170             175

Val Arg Cys Gln Ala Phe Ile Asn Gln Ala Asp Lys Ala Ala Gly Val
            180             185             190

His Val Gly Glu Asn Thr Val Lys Tyr Thr Leu Ile Asn Lys Cys Ser
            195             200             205

Val Asn Phe
        210
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Met Ser His His His His His Glu Thr Asn Pro His Phe Ala Arg Ile
1               5                   10                  15

Pro Ser Gln Asn Pro His Leu Lys Ser Gly Gly Ala Ser Thr Ser Gln
                20              25              30

Thr Ser Ser Asn Gln Pro His Ile Pro Pro Ile Pro His Pro Lys Lys
            35              40              45

Ser His His Lys Thr Thr Gln Pro His Pro Val Ala Pro Pro Gly Ile
        50              55              60

Leu Ile Lys Thr Arg Gly Arg His Arg Glu Asn Pro Ile Gln Glu Pro
65              70              75              80

Lys His Ser Val Ile Pro Val Pro Leu Ser Pro Glu Glu Arg Leu Pro
                85              90              95

Pro Arg Lys Thr Gln Asn Ser Ser Lys Arg Pro Leu Leu Leu Ser Pro
            100             105             110

Glu Asp Asn Gln Gln Gln Arg Pro Pro Pro Gln Ala Pro Gln Arg
            115             120             125

Asn Gly Gly Gly Tyr Gly Ser Thr Leu Pro Pro Ile Pro Lys Pro Ser
        130             135             140

Pro Trp Arg Thr Ala Pro Thr Pro Ser Pro His His Arg Arg Gly Pro
145             150             155             160
```

Arg Leu Pro Pro Pro Ser Arg Glu Thr Asn Ala Met Thr Trp Ser Ala
              165   170   175

Ala Phe Cys Cys Ala Ile Phe Trp Val Ile Leu Ile Leu Gly Gly Leu
          180   185   190

Ile Ile Leu Ile Val Tyr Leu Val Tyr Arg Pro Arg Ser Pro Tyr Val
          195   200   205

Asp Ile Ser Ala Ala Asn Leu Asn Ala Ala Tyr Leu Asp Met Gly Phe
    210   215   220

Leu Leu Asn Gly Asp Leu Thr Ile Leu Ala Asn Val Thr Asn Pro Ser
225   230   235   240

Lys Lys Ser Ser Val Glu Phe Ser Tyr Val Thr Phe Glu Leu Tyr Tyr
              245   250   255

Tyr Asn Thr Leu Ile Ala Thr Gln Tyr Ile Glu Pro Phe Lys Val Pro
          260   265   270

Lys Lys Thr Ser Met Phe Ala Asn Val His Leu Val Ser Ser Gln Val
          275   280   285

Gln Leu Gln Ala Thr Gln Ser Arg Glu Leu Gln Arg Gln Ile Glu Thr
    290   295   300

Gly Pro Val Leu Leu Asn Leu Arg Gly Met Phe His Ala Arg Ser His
305   310   315   320

Ile Gly Pro Leu Phe Arg Tyr Ser Tyr Lys Leu His Thr His Cys Ser
              325   330   335

Val Ser Leu Asn Gly Pro Pro Leu Gly Ala Met Arg Ala Arg Arg Cys
              340   345   350

Asn Thr Lys Arg
          355

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<400>   93

Met Lys Asp Cys Glu Asn His Gly His Ser Arg Arg Lys Leu Ile Arg
1   5   10   15

Page 147

Arg Ile Phe Trp Ser Ile Ile Phe Val Leu Phe Ile Ile Phe Leu Thr
             20   25   30

Ile Leu Leu Ile Trp Ala Ile Leu Gln Pro Ser Lys Pro Arg Phe Ile
         35   40   45

Leu Gln Asp Ala Thr Val Tyr Ala Phe Asn Val Ser Gly Asn Pro Pro
     50   55   60

Asn Leu Leu Thr Ser Asn Phe Gln Ile Thr Leu Ser Ser Arg Asn Pro
65   70   75   80

Asn Asn Lys Ile Gly Ile Tyr Tyr Asp Arg Leu Asp Val Tyr Ala Thr
                 85   90   95

Tyr Arg Ser Gln Gln Ile Thr Phe Pro Thr Ser Ile Pro Pro Thr Tyr
             100   105   110

Gln Gly His Lys Asp Val Asp Ile Trp Ser Pro Phe Val Tyr Gly Thr
             115   120   125

Ser Val Pro Ile Ala Pro Phe Asn Gly Val Ser Leu Asp Thr Asp Lys
     130   135   140

Asp Asn Gly Val Val Leu Leu Ile Ile Arg Ala Asp Gly Arg Val Arg
145   150   155   160

Trp Lys Val Gly Thr Phe Ile Thr Gly Lys Tyr His Leu His Val Lys
             165   170   175

Cys Pro Ala Tyr Ile Asn Phe Gly Asn Lys Ala Asn Gly Val Ile Val
             180   185   190

Gly Asp Asn Ala Val Lys Tyr Thr Phe Thr Thr Ser Cys Ser Val Ser
         195   200   205

Val

<210>   94
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<213>   Arabidopsis thaliana

<400>   94

Met Thr Glu Lys Glu Cys Glu His His His Asp Glu Asp Glu Lys Met
1   5   10   15

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Arg Lys Arg Ile Gly Ala Leu Val Leu Gly Phe Leu Ala Ala Val Leu
            20              25              30

Phe Val Val Phe Leu Val Trp Ala Ile Leu His Pro His Gly Pro Arg
        35              40              45

Phe Val Leu Gln Asp Ala Thr Ile Tyr Ala Phe Asn Val Ser Gln Pro
    50              55              60

Asn Tyr Leu Thr Ser Asn Leu Gln Val Thr Leu Ser Ser Arg Asn Pro
65              70              75              80

Asn Asp Lys Ile Gly Ile Phe Tyr Asp Arg Leu Asp Ile Tyr Ala Ser
                85              90              95

Tyr Arg Asn Gln Gln Val Thr Leu Ala Thr Leu Leu Pro Ala Thr Tyr
            100             105             110

Gln Gly His Leu Asp Val Thr Ile Trp Ser Pro Phe Leu Tyr Gly Thr
            115             120             125

Thr Val Pro Val Ala Pro Tyr Phe Ser Pro Ala Leu Ser Gln Asp Leu
    130             135             140

Thr Ala Gly Met Val Leu Leu Asn Ile Lys Ile Asp Gly Trp Val Arg
145             150             155             160

Trp Lys Val Gly Thr Trp Val Ser Gly Arg Tyr Arg Leu His Val Asn
                165             170             175

Cys Pro Ala Tyr Ile Thr Leu Ala Gly His Phe Ser Gly Asp Gly Pro
            180             185             190

Ala Val Lys Tyr Gln Leu Val Gln Arg Cys Ala Val Asp Val
            195             200             205

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Met Val Pro Pro Asn Pro Ala His Gln Pro Ala Arg Arg Thr Gln Pro
1               5               10              15

Gln Leu Gln Pro Gln Ser Gln Pro Arg Ala Gln Pro Leu Pro Gly Arg
            20              25              30
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Arg Met Asn Pro Val Leu Cys Ile Ile Val Ala Leu Val Leu Leu Gly
        35   40   45

Leu Leu Val Gly Leu Ala Ile Leu Ile Thr Tyr Leu Thr Leu Arg Pro
        50   55   60

Lys Arg Leu Ile Tyr Thr Val Glu Ala Ala Ser Val Gln Glu Phe Ala
65   70   75   80

Ile Gly Asn Asn Asp Asp His Ile Asn Ala Lys Phe Ser Tyr Val Ile
                85   90   95

Lys Ser Tyr Asn Pro Glu Lys His Val Ser Val Arg Tyr His Ser Met
                100   105   110

Arg Ile Ser Thr Ala His His Asn Gln Ser Val Ala His Lys Asn Ile
        115   120   125

Ser Pro Phe Lys Gln Arg Pro Lys Asn Glu Thr Arg Ile Glu Thr Gln
        130   135   140

Leu Val Ser His Asn Val Ala Leu Ser Lys Phe Asn Ala Arg Asp Leu
145   150   155   160

Arg Ala Glu Lys Ser Lys Gly Thr Ile Glu Met Glu Val Tyr Ile Thr
                165   170   175

Ala Arg Val Ser Tyr Lys Thr Trp Ile Phe Arg Ser Arg Arg Arg Thr
                180   185   190

Leu Lys Ala Val Cys Thr Pro Val Met Ile Asn Val Thr Ser Ser Ser
        195   200   205

Leu Asp Gly Phe Gln Arg Val Leu Cys Lys Thr Arg Leu
210   215   220

<210>   96
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<213>   Arabidopsis thaliana

<400>   96

Met Pro Pro Pro Ser Ser Ser Arg Ala Gly Leu Asn Gly Asp Pro
1   5   10   15

Ile Ala Ala Gln Asn Gln Gln Pro Tyr Tyr Arg Ser Tyr Ser Ser Ser
                20   25   30

Ser Ser Ala Ser Leu Lys Gly Cys Cys Cys Cys Leu Phe Leu Leu Phe
        35   40   45

Ala Phe Leu Ala Leu Leu Val Leu Ala Val Val Leu Ile Val Ile Leu
    50   55   60

Ala Val Lys Pro Lys Lys Pro Gln Phe Asp Leu Gln Gln Val Ala Val
65   70   75   80

Val Tyr Met Gly Ile Ser Asn Pro Ser Ala Val Leu Asp Pro Thr Thr
            85   90   95

Ala Ser Leu Ser Leu Thr Ile Arg Met Leu Phe Thr Ala Val Asn Pro
            100   105   110

Asn Lys Val Gly Ile Arg Tyr Gly Glu Ser Ser Phe Thr Val Met Tyr
        115   120   125

Lys Gly Met Pro Leu Gly Arg Ala Thr Val Pro Gly Phe Tyr Gln Asp
    130   135   140

Ala His Ser Thr Lys Asn Val Glu Ala Thr Ile Ser Val Asp Arg Val
145   150   155   160

Asn Leu Met Gln Ala His Ala Ala Asp Leu Val Arg Asp Ala Ser Leu
            165   170   175

Asn Asp Arg Val Glu Leu Thr Val Arg Gly Asp Val Gly Ala Lys Ile
            180   185   190

Arg Val Met Asn Phe Asp Ser Pro Gly Val Gln Val Leu Leu Pro Ser
            195   200   205

Phe Leu Pro Ala Phe Cys Ser Leu Ser Asp Leu Ala
    210   215   .   220

<210> 97
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Met Thr Ser Lys Asp Cys Gly Ser His Asp Ser His Ser Ser Cys Asn
1   5   10   15

Arg Lys Ile Val Ile Trp Thr Ile Ser Ile Ile Leu Leu Leu Ile Leu
        20   25   30

Val Val Ile Leu Leu Val Trp Ala Ile Leu Gln Pro Ser Lys Pro Arg
        35   40   45

Phe Val Leu Gln Asp Ala Thr Val Phe Asn Phe Asn Val Ser Gly Asn
        50   55   60

Pro Pro Asn Leu Leu Thr Ser Asn Phe Gln Phe Thr Leu Ser Ser Arg
65   70   75   80

Asn Pro Asn Asp Lys Ile Gly Ile Tyr Tyr Asp Arg Leu Asp Val Tyr
                85   90   95

Ala Ser Tyr Arg Ser Gln Gln Ile Thr Leu Pro Ser Pro Met Leu Thr
                100   105   110

Thr Tyr Gln Gly His Lys Glu Val Asn Val Trp Ser Pro Phe Val Gly
        115   120   125

Gly Tyr Ser Val Pro Val Ala Pro Tyr Asn Ala Phe Tyr Leu Asp Gln
        130   135   140

Asp His Ser Ser Gly Ala Ile Met Leu Met Leu His Leu Asp Gly Arg
145   150   155   160

Val Arg Trp Lys Val Gly Ser Phe Ile Thr Gly Lys Tyr His Leu His
                165   170   175

Val Arg Cys His Ala Leu Ile Asn Phe Gly Ser Ser Ala Ala Gly Val
                180   185   190

Ile Val Gly Lys Tyr Met Leu Thr Glu Thr Cys Ser Val Ser Val
                195   200   205

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Met Ser Lys Phe Ser Pro Pro Pro Gln Ser Gln Pro Gln Pro Pro Glu
1   5   10   15

Thr Pro Pro Trp Glu Thr Pro Ser Ser Lys Trp Tyr Ser Pro Ile Tyr
                20   25   30

Thr Pro Trp Arg Thr Thr Pro Arg Ser Thr Gln Ser Thr Pro Thr Thr
        35   40   45

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Thr Pro Ile Ala Leu Thr Glu Val Ile Val Ser Lys Ser Pro Leu Ser
    50              55              60

Asn Gln Lys Ser Pro Ala Thr Pro Lys Leu Asp Ser Met Glu Ala His
65              70              75              80

Pro Leu His Glu Thr Met Val Leu Leu Gln Leu Arg Thr Ser Arg Thr
                85              90              95

Asn Pro Trp Ile Trp Cys Gly Ala Ala Leu Cys Phe Ile Phe Ser Ile
            100             105             110

Leu Leu Ile Val Phe Gly Ile Ala Thr Leu Ile Leu Tyr Leu Ala Val
        115             120             125

Lys Pro Arg Thr Pro Val Phe Asp Ile Ser Asn Ala Lys Leu Asn Thr
    130             135             140

Ile Leu Phe Glu Ser Pro Val Tyr Phe Asn Gly Asp Met Leu Leu Gln
145             150             155             160

Leu Asn Phe Thr Asn Pro Asn Lys Lys Leu Asn Val Arg Phe Glu Asn
            165             170             175

Leu Met Val Glu Leu Trp Phe Ala Asp Thr Lys Ile Ala Thr Gln Gly
            180             185             190

Val Leu Pro Phe Ser Gln Arg Asn Gly Lys Thr Arg Leu Glu Pro Ile
        195             200             205

Arg Leu Ile Ser Asn Leu Val Phe Leu Pro Val Asn His Ile Leu Glu
    210             215             220

Leu Arg Arg Gln Val Thr Ser Asn Arg Ile Ala Tyr Glu Ile Arg Ser
225             230             235             240

Asn Phe Arg Val Lys Ala Ile Phe Gly Met Ile His Tyr Ser Tyr Met
            245             250             255

Leu His Gly Ile Cys Gln Leu Gln Leu Ser Ser Pro Pro Ala Gly Gly
            260             265             270

Leu Val Tyr Arg Asn Cys Thr Thr Lys Arg Trp
        275             280
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<212> PRT
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Met Asn Asn Gln Asn Glu Asp Thr Glu Gly Gly Arg Asn Cys Cys Thr
1               5                   10                  15

Cys Cys Leu Ser Phe Ile Phe Thr Ala Gly Leu Thr Ser Leu Phe Leu
            20                  25                  30

Trp Leu Ser Leu Arg Ala Asp Lys Pro Lys Cys Ser Ile Gln Asn Phe
            35                  40                  45

Phe Ile Pro Ala Leu Gly Lys Asp Pro Asn Ser Arg Asp Asn Thr Thr
    50                  55                  60

Leu Asn Phe Met Val Arg Cys Asp Asn Pro Asn Lys Asp Lys Gly Ile
65                  70                  75                  80

Tyr Tyr Asp Asp Val His Leu Asn Phe Ser Thr Ile Asn Thr Thr Lys
                85                  90                  95

Ile Asn Ser Ser Ala Leu Val Leu Val Gly Asn Tyr Thr Val Pro Lys
            100                 105                 110

Phe Tyr Gln Gly His Lys Lys Lys Ala Lys Lys Trp Gly Gln Val Lys
            115                 120                 125

Pro Leu Asn Asn Gln Thr Val Leu Arg Ala Val Leu Pro Asn Gly Ser
    130                 135                 140

Ala Val Phe Arg Leu Asp Leu Lys Thr Gln Val Arg Phe Lys Ile Val
145                 150                 155                 160

Phe Trp Lys Thr Lys Arg Tyr Gly Val Glu Val Gly Ala Asp Val Glu
                165                 170                 175

Val Asn Gly Asp Gly Val Lys Ala Gln Lys Lys Gly Ile Lys Met Lys
            180                 185                 190

Lys Ser Asp Ser Ser Phe Pro Leu Arg Ser Ser Phe Pro Ile Ser Val
            195                 200                 205

Leu Met Asn Leu Leu Val Phe Phe Ala Ile Arg
    210                 215
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Met Ser Asp Phe Ser Ile Lys Pro Asp Asp Lys Lys Glu Glu Glu Lys
1   5   10   15

Pro Ala Thr Ala Met Leu Pro Pro Pro Lys Pro Asn Ala Ser Ser Met
            20   25   30

Glu Thr Gln Ser Ala Asn Thr Gly Thr Ala Lys Lys Leu Arg Arg Lys
        35   40   45

Arg Asn Cys Lys Ile Cys Ile Cys Phe Thr Ile Leu Leu Ile Leu Leu
        50   55   60

Ile Ala Ile Val Ile Val Ile Leu Ala Phe Thr Leu Phe Lys Pro Lys
65   70   75   80

Arg Pro Thr Thr Thr Ile Asp Ser Val Thr Val Asp Arg Leu Gln Ala
                85   90   95

Ser Val Asn Pro Leu Leu Leu Lys Val Leu Leu Asn Leu Thr Leu Asn
            100   105   110

Val Asp Leu Ser Leu Lys Asn Pro Asn Arg Ile Gly Phe Ser Tyr Asp
        115   120   125

Ser Ser Ser Ala Leu Leu Asn Tyr Arg Gly Gln Val Ile Gly Glu Ala
    130   135   140

Pro Leu Pro Ala Asn Arg Ile Ala Ala Arg Lys Thr Val Pro Leu Asn
145   150   155   160

Ile Thr Leu Thr Leu Met Ala Asp Arg Leu Leu Ser Glu Thr Gln Leu
                165   170   175

Leu Ser Asp Val Met Ala Gly Val Ile Pro Leu Asn Thr Phe Val Lys
            180   185   190

Val Thr Gly Lys Val Thr Val Leu Lys Ile Phe Lys Ile Lys Val Gln
        195   200   205

Ser Ser Ser Ser Cys Asp Leu Ser Ile Ser Val Ser Asp Arg Asn Val
    210   215   220

Thr Ser Gln His Cys Lys Tyr Ser Thr Lys Leu
225   230   235

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<213> Arabidopsis thaliana

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Met Thr Lys Ile Asp Pro Glu Glu Glu Leu Gly Arg Lys Cys Cys Thr
1   5   10   15

Cys Phe Phe Lys Phe Ile Phe Thr Thr Arg Leu Gly Ala Leu Ile Leu
                20   25   30

Trp Leu Ser Leu Arg Ala Lys Lys Pro Lys Cys Ser Ile Gln Asn Phe
        35   40   45

Tyr Ile Pro Ala Leu Ser Lys Asn Leu Ser Ser Arg Asp Asn Thr Thr
    50   55   60

Leu Asn Phe Met Val Arg Cys Asp Asn Pro Asn Lys Asp Lys Gly Ile
65   70   75   80

Tyr Tyr Asp Asp Val His Leu Thr Phe Ser Thr Ile Asn Thr Thr Thr
                85   90   95

Thr Asn Ser Ser Asp Leu Val Leu Val Ala Asn Tyr Thr Val Pro Lys
            100   105   110

Phe Tyr Gln Gly His Lys Lys Lys Ala Lys Lys Trp Gly Gln Val Trp
            115   120   125

Pro Leu Asn Asn Gln Thr Val Leu Arg Ala Val Leu Pro Asn Gly Ser
    130   135   140

Ala Val Phe Arg Leu Asp Leu Lys Thr His Val Arg Phe Lys Ile Val
145   150   155   160

Phe Trp Lys Thr Lys Trp Tyr Arg Arg Ile Lys Val Gly Ala Asp Val
                165   170   175

Glu Val Asn Gly Asp Gly Val Lys Ala Gln Lys Lys Gly Ser Lys Thr
            180   185   190

Lys Lys Ser Asp Ser Ser Leu Pro Leu Arg Ser Ser Phe Pro Ile Phe
            195   200   205

Val Leu Met Asn Leu Leu Val Phe Phe Ala Ile Arg
    210   215   220

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<212> PRT
<213> Arabidopsis thaliana

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Met Ser His Val Thr Ala Thr Ser Leu Ala Arg Phe Thr Lys Pro Val
1   5   10   15

Pro Lys Pro Ala Ser Ser Pro Ile Val Asn Thr Lys Leu Thr Thr Ser
                20   25   30

Gly Gly Arg Thr Ala Ala Phe Met Asp Leu Ser Ser Phe Arg Leu Thr
            35   40   45

Val Trp Asp Pro Asp Thr Ala Asn Asp Ser Ser Gly Lys Phe Pro Trp
    50   55   60

Pro Arg Phe Leu Phe Phe Phe Leu Thr Leu Lys Thr Gly Gly Ser Gly
65   70   75   80

Leu Asn Ile Lys Pro Thr Ile Ser Ala Ile Ala Gln Met Met Asn Pro
                85   90   95

Met Thr Ile Thr Glu Met Asn Asn Gln Met His Arg Leu Glu Gln Lys
                100   105   110

Leu Leu Leu Phe Leu Pro Gly Ser Leu Phe Leu Arg Leu Ser Thr Ile
            115   120   125

Leu His Tyr Pro Gly Glu Gly Ser Asn Arg Pro Asp Pro Leu Glu His
    130   135   140

Ala Leu Arg Arg Ser Arg Ser Leu Gly Leu Asp Gln Glu Glu Ala Ala
145   150   155   160

Lys Lys Val Ile Arg Val Gly Arg Asp Ser Lys Asn Asp Tyr Val Asn
                165   170   175

Val Val Glu Asn Gln Ala Ala Ser Phe Leu Arg Arg Cys Gly Pro Ser
                180   185   190

Lys Arg Ile Gln Ser Val Asn Tyr Cys Lys Ser Thr Arg Gln Gly His
            195   200   205

Glu Ile Pro Asp Val Lys Pro Leu Phe Pro Thr Gly Gly Gly Thr Gln
    210   215   220

Ala Pro Ser Arg Ser Arg Ala Arg Tyr Ala Val Pro Ala Ile Leu Leu
225   230   235   240

Gly Phe Ala Gly Phe Val Gly Phe Leu His Tyr Asn Asp Glu Arg Arg
            245   250   255

Ala Val Pro Arg Gly Gln Ala Ser Ser Asn Ser Gly Cys Gly Cys Gly
            260   265   270

Ser Asn Thr Thr Val Lys Gly Pro Ile Ile Gly Gly Pro Phe Thr Leu
        275   280   285

Val Ser Thr Glu Asn Lys Ile Val Thr Glu Asn Asp Phe Cys Gly Lys
    290   295   300

Trp Val Leu Leu Tyr Phe Gly Tyr Ser Phe Ser Pro Asp Val Gly Pro
305   310   315   320

Glu Gln Leu Lys Met Met Ser Lys Ala Val Asp Lys Leu Ala Ile Leu
            325   330   335

Leu Asn Pro Leu Thr Phe Gly Cys Leu Tyr Leu Tyr Ala Glu Phe Asp
            340   345   350

Ser Arg Ile Leu Gly Leu Thr Gly Thr Ala Ser Ala Met Arg Gln Met
        355   360   365

Ala Gln Glu Tyr Arg Val Tyr Phe Lys Lys Val Gln Glu Asp Gly Glu
    370   375   380

Asp Tyr Leu Val Asp Thr Ser His Asn Met Tyr Leu Ile Asn Pro Lys
385   390   395   400

Met Glu Ile Val Arg Cys Phe Gly Val Glu Tyr Asn Pro Asp Glu Leu
            405   410   415

Ser Gln Glu Leu Leu Lys Glu Val Ala Ser Val Ser Gln
            420   425

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<213>   Arabidopsis thaliana

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Met Val Arg Ser Asn Asp Val Lys Phe Gln Val Tyr Asp Ala Glu Leu
1   5   10   15

Thr His Phe Asp Leu Glu Ser Asn Asn Asn Leu Gln Tyr Ser Leu Ser
           20   25   30

Leu Asn Leu Ser Ile Arg Asn Ser Lys Ser Ser Ile Gly Ile His Tyr
           35   40   45

Asp Arg Phe Glu Ala Thr Val Tyr Tyr Met Asn Gln Arg Leu Gly Ala
       50   55   60

Val Pro Met Pro Leu Phe Tyr Leu Gly Ser Lys Asn Thr Met Leu Leu
65   70   75   80

Arg Ala Leu Phe Glu Gly Gln Thr Leu Val Leu Leu Lys Gly Asn Glu
           85   90   95

Arg Lys Lys Phe Glu Asp Asp Gln Lys Thr Gly Val Tyr Arg Ile Asp
           100   105   110

Val Lys Leu Ser Ile Asn Phe Arg Val Met Val Leu His Leu Val Thr
           115   120   125

Trp Pro Met Lys Pro Val Val Arg Cys His Leu Lys Ile Pro Leu Ala
      130   135   140

Leu Gly Ser Ser Asn Ser Thr Gly Gly His Lys Lys Met Leu Leu Ile
145   150   155   160

Gly Gln Leu Val Lys Asp Thr Ser Ala Asn Leu Arg Glu Ala Ser Glu
           165   170   175

Thr Asp His Arg Arg Asp Val Ala Gln Ser Lys Lys Ile Ala Asp Ala
           180   185   190

Lys Leu Ala Lys Asp Phe Glu Ala Ala Leu Lys Glu Phe Gln Lys Ala
           195   200   205

Gln His Ile Thr Val Glu Arg Glu Thr Ser Tyr Ile Pro Phe Asp Pro
      210   215   220

Lys Gly Ser Phe Ser Ser Ser Glu Val Asp Ile Gly Tyr Asp Arg Ser
225   230   235   240

Gln Glu Gln Arg Val Leu Met Glu Ser Arg Arg Gln Glu Ile Val Leu
           245   250   255

Leu Asp Asn Glu Ile Ser Leu Asn Glu Ala Arg Ile Glu Ala Arg Glu

                    260   265   270

Gln Gly Ile Gln Glu Val Lys His Gln Ile Ser Glu Val Met Glu Met
        275   280   285

Phe Lys Asp Leu Ala Val Met Val Asp His Gln Gly Thr Ile Asp Asp
    290   295   300

Ile Asp Glu Lys Ile Asp Asn Leu Arg Ser Ala Ala Ala Gln Gly Lys
305   310   315   320

Ser His Leu Val Lys Ala Ser Asn Thr Gln Gly Ser Asn Ser Ser Leu
            325   330   335

Leu Phe Ser Cys Ser Leu Leu Leu Phe Phe Phe Leu Ser Gly Asp Leu
            340   345   350

Cys Arg Cys Val Cys Val Gly Ser Glu Asn Pro Arg Leu Asn Pro Thr
            355   360   365

Arg Arg Lys Ala Trp Cys Glu Glu Glu Asp Glu Glu Gln Arg Lys Lys
    370   375   380

Gln Gln Lys Lys Lys Thr Met Ser Glu Lys Arg Arg Arg Glu Glu Lys
385   390   395   400

Lys Val Asn Lys Pro Asn Gly Phe Val Phe Cys Val Leu Gly His Lys
            405   410   415

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<212> PRT
<213> Arabidopsis thaliana

<400> 104

Met Ser His His His Tyr Glu Thr Asn Pro His Phe Val Gln Phe Ser
1   5   10   15

Leu Gln Asp Gln His Gln Gly Gly Pro Ser Ser Ser Trp Asn Ser Pro
            20   25   30

His His His Gln Ile Pro Gln Ala His Ser Val Ala Pro Pro Arg Val
        35   40   45

Lys Ile Lys Thr Arg Gly Arg His Gln Thr Glu Pro Pro Glu Thr Ile
    50   55   60

His Glu Ser Pro Ser Ser Arg Pro Leu Pro Leu Arg Pro Glu Glu Pro

Leu Pro Pro Arg His Asn Pro Asn Ser Ala Arg Pro Leu Gln Leu Ser
              85   90   95

Pro Glu Glu Gln Arg Pro Pro His Arg Gly Tyr Gly Ser Glu Pro Thr
            100   105   110

Pro Trp Arg Arg Ala Pro Thr Arg Pro Ala Tyr Gln Gln Gly Pro Lys
            115   120   125

Arg Thr Lys Pro Met Thr Leu Pro Ala Thr Ile Cys Cys Ala Ile Leu
    130   135   140

Leu Ile Val Leu Ile Leu Ser Gly Leu Ile Leu Leu Leu Val Tyr Leu
145   150   155   160

Ala Asn Arg Pro Arg Ser Pro Tyr Phe Asp Ile Ser Ala Ala Thr Leu
            165   170   175

Asn Thr Ala Asn Leu Asp Met Gly Tyr Val Leu Asn Gly Asp Leu Ala
            180   185   190

Val Val Val Asn Phe Thr Asn Pro Ser Lys Lys Ser Ser Val Asp Phe
            195   200   205

Ser Tyr Val Met Phe Glu Leu Tyr Phe Tyr Asn Thr Leu Ile Ala Thr
    210   215   220

Glu His Ile Glu Pro Phe Ile Val Pro Lys Gly Met Ser Met Phe Thr
225   230   235   240

Ser Phe His Leu Val Ser Ser Gln Val Gln Ile Gln Met Ile Gln Ser
            245   250   255

Gln Asp Leu Gln Leu Gln Leu Gly Thr Gly Pro Val Leu Leu Asn Leu
            260   265   270

Arg Gly Thr Phe His Ala Arg Ser Asn Leu Gly Ser Leu Met Arg Tyr
            275   280   285

Ser Tyr Trp Leu His Thr Gln Cys Ser Ile Ser Leu Asn Thr Pro Pro
    290   295   300

Ala Gly Thr Met Arg Ala Arg Arg Cys Asn Thr Lys Arg
305   310   315

<210> 105
<211> 198
<212> PRT
<213> Arabidopsis thaliana

<400> 105

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Met Pro Arg Leu Thr Ser Arg His Gly Thr Ser Pro Phe Ile Trp Cys
1               5                  10                  15

Ala Ala Ile Ile Cys Ala Ile Ile Ser Ile Val Val Ile Val Gly Gly
            20                  25                  30

Ile Ile Val Phe Val Gly Tyr Leu Val Ile His Pro Arg Val Pro Ile
            35                  40                  45

Ile Ser Val Ala Asp Ala His Leu Asp Phe Leu Lys Tyr Asp Ile Val
        50                  55                  60

Gly Val Leu Gln Thr Gln Leu Thr Ile Val Ile Arg Val Glu Asn Asp
65                  70                  75                  80

Asn Ala Lys Ala His Ala Leu Phe Asp Glu Thr Glu Phe Lys Leu Ser
                85                  90                  95

Tyr Glu Gly Lys Pro Ile Ala Ile Leu Lys Ala Pro Glu Phe Glu Val
                100                 105                 110

Val Lys Glu Lys Ser Met Phe Leu Pro Tyr Leu Val Gln Ser Tyr Pro
                115                 120                 125

Ile Pro Leu Asn Pro Thr Met Met Gln Ala Val Asp Tyr Ala Val Lys
        130                 135                 140

Lys Asp Val Ile Thr Phe Glu Leu Lys Gly Gly Ser Arg Thr Arg Trp
145                 150                 155                 160

Arg Val Gly Pro Leu Gly Ser Val Lys Phe Glu Cys Asn Leu Ser Cys
                165                 170                 175

Gln Leu Arg Phe Arg Pro Ser Asp His Ser Tyr Ile Pro Ser Pro Cys
                180                 185                 190

Thr Ser Ala His Lys His
            195
```

<210> 106
<211> 222
<212> PRT
<213> Arabidopsis thaliana

<400> 106

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Met Asp Arg Asp Asp Ala Trp Glu Trp Phe Val Thr Ile Val Gly Ser
1               5               10              15

Leu Met Thr Leu Leu Tyr Val Ser Phe Leu Leu Ala Leu Cys Leu Trp
        20              25              30

Leu Ser Thr Leu Val His His Ile Pro Arg Cys Ser Ile His Tyr Phe
        35              40              45

Tyr Ile Pro Ala Leu Asn Lys Ser Leu Ile Ser Ser Asp Asn Thr Thr
    50              55              60

Leu Asn Phe Met Val Arg Leu Lys Asn Ile Asn Ala Lys Gln Gly Ile
65              70              75              80

Tyr Tyr Glu Asp Leu His Leu Ser Phe Ser Thr Arg Ile Asn Asn Ser
            85              90              95

Ser Leu Leu Val Ala Asn Tyr Thr Val Pro Arg Phe Tyr Gln Gly His
            100             105             110

Glu Lys Lys Ala Lys Lys Trp Gly Gln Ala Leu Pro Phe Asn Asn Gln
        115             120             125

Thr Val Ile Gln Ala Val Leu Pro Asn Gly Ser Ala Ile Phe Arg Val
    130             135             140

Asp Leu Lys Met Gln Val Lys Tyr Lys Val Met Ser Trp Lys Thr Lys
145             150             155             160

Arg Tyr Lys Leu Lys Ala Ser Val Asn Leu Glu Val Asn Glu Asp Gly
            165             170             175

Ala Thr Lys Val Lys Asp Lys Glu Asp Gly Ile Lys Met Lys Ile Ser
            180             185             190

Asp Ser Ser Pro Gln Arg Leu Thr Phe Phe Gln Val Cys Phe Ser Ile
        195             200             205

Ile Cys Val Leu Met Asn Trp Leu Ile Phe Leu Ala Ile Arg
    210             215             220
```

<210> 107
<211> 200
<212> PRT
<213> Arabidopsis thaliana

<400> 107

```
Met Val Leu Thr Lys Pro Ala Thr Val Arg Phe Asn Gly Leu Asp Ala
1               5                   10                  15


Glu Pro Arg Lys Asp Arg Val Ile Leu Arg Gln Pro Arg Ser Ser Arg
            20                  25                  30


Thr Ser Leu Trp Ile Trp Cys Val Ala Val Phe Leu Ala Ile Arg Pro
            35                  40                  45


Arg Ile Pro Val Phe Asp Ile Pro Asn Ala Asn Leu His Thr Ile Tyr
    50                  55                  60


Phe Asp Thr Pro Glu Phe Phe Asn Gly Asp Leu Ser Met Leu Val Asn
65                  70                  75                  80


Phe Thr Asn Pro Asn Lys Lys Ile Glu Val Lys Phe Glu Lys Leu Arg
                85                  90                  95


Ile Glu Leu Phe Phe Phe Asn Arg Leu Ile Ala Ala Gln Val Val Gln
            100                 105                 110


Pro Phe Leu Gln Lys Lys His Glu Thr Arg Leu Glu Pro Ile Arg Leu
            115                 120                 125


Ile Ser Ser Leu Val Gly Leu Pro Val Asn His Ala Val Glu Leu Arg
    130                 135                 140


Arg Gln Leu Glu Asn Asn Lys Ile Glu Tyr Glu Ile Arg Gly Thr Phe
145                 150                 155                 160


Lys Val Lys Ala His Phe Gly Met Ile His Tyr Ser Tyr Gln Leu His
                165                 170                 175


Gly Arg Cys Gln Leu Gln Met Thr Gly Pro Pro Thr Gly Ile Leu Ile
            180                 185                 190


Ser Arg Asn Cys Thr Thr Lys Lys
            195                 200
```

<210>   108
<211>   320
<212>   PRT
<213>   Arabidopsis thaliana

<400>   108

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Met His Ala Lys Thr Asp Ser Glu Val Thr Ser Leu Ser Ala Ser Ser
```

Pro Thr Arg Ser Pro Arg Arg Pro Ala Tyr Phe Val Gln Ser Pro Ser
              20   25   30

Arg Asp Ser His Asp Gly Glu Lys Thr Ala Thr Ser Phe His Ser Thr
          35   40   45

Pro Val Leu Thr Ser Pro Met Gly Ser Pro Pro His Ser His Ser Ser
      50   55   60

Ser Ser Arg Phe Ser Lys Ile Asn Gly Ser Lys Arg Lys Gly His Ala
65   70   75   80

Gly Glu Lys Gln Phe Ala Met Ile Glu Glu Glu Gly Leu Leu Asp Asp
              85   90   95

Gly Asp Arg Glu Gln Glu Ala Leu Pro Arg Arg Cys Tyr Val Leu Ala
          100   105   110

Phe Ile Val Gly Phe Ser Leu Leu Phe Ala Phe Phe Ser Leu Ile Leu
          115   120   125

Tyr Ala Ala Ala Lys Pro Gln Lys Pro Lys Ile Ser Val Lys Ser Ile
      130   135   140

Thr Phe Glu Gln Leu Lys Val Gln Ala Gly Gln Asp Ala Gly Gly Ile
145   150   155   160

Gly Thr Asp Met Ile Thr Met Asn Ala Thr Leu Arg Met Leu Tyr Arg
              165   170   175

Asn Thr Gly Thr Phe Phe Gly Val His Val Thr Ser Ser Pro Ile Asp
              180   185   190

Leu Ser Phe Ser Gln Ile Thr Ile Gly Ser Gly Ser Ile Lys Lys Phe
          195   200   205

Tyr Gln Ser Arg Lys Ser Gln Arg Thr Val Val Val Asn Val Leu Gly
      210   215   220

Asp Lys Ile Pro Leu Tyr Gly Ser Gly Ser Thr Leu Val Pro Pro Pro
225   230   235   240

Pro Pro Ala Pro Ile Pro Lys Pro Lys Lys Lys Lys Gly Pro Ile Val
              245   250   255

```
Ile Val Glu Pro Pro Ala Pro Pro Ala Pro Val Pro Met Arg Leu Asn
          260             265             270

Phe Thr Val Arg Ser Arg Ala Tyr Val Leu Gly Lys Leu Val Gln Pro
          275             280             285

Lys Phe Tyr Lys Arg Ile Val Cys Leu Ile Asn Phe Glu His Lys Lys
    290             295             300

Leu Ser Lys His Ile Pro Ile Thr Asn Asn Cys Thr Val Thr Ser Ile
305             310             315             320
```

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<210> 109
<211> 342
<212> PRT
<213> Arabidopsis thaliana
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<400> 109
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```
Met His Ala Lys Thr Asp Ser Glu Val Thr Ser Leu Ala Ala Ser Ser
1             5             10             15

Pro Ala Arg Ser Pro Arg Arg Pro Val Tyr Tyr Val Gln Ser Pro Ser
              20             25             30

Arg Asp Ser His Asp Gly Glu Lys Thr Ala Thr Ser Phe His Ser Thr
          35             40             45

Pro Val Leu Ser Pro Met Gly Ser Pro Pro His Ser His Ser Ser Met
    50             55             60

Gly Arg His Ser Arg Glu Ser Ser Ser Arg Phe Ser Gly Ser Leu
65             70             75             80

Lys Pro Gly Ser Arg Lys Val Asn Pro Asn Asp Gly Ser Lys Arg Lys
              85             90             95

Gly His Gly Gly Glu Lys Gln Trp Lys Glu Cys Ala Val Ile Glu Glu
          100             105             110

Glu Gly Leu Leu Asp Asp Gly Asp Arg Asp Gly Gly Val Pro Arg Arg
          115             120             125

Cys Tyr Val Leu Ala Phe Ile Val Gly Phe Phe Ile Leu Phe Gly Phe
    130             135             140

Phe Ser Leu Ile Leu Tyr Gly Ala Ala Lys Pro Met Lys Pro Lys Ile
145             150             155             160
```

Thr Val Lys Ser Ile Thr Phe Glu Thr Leu Lys Ile Gln Ala Gly Gln
                165   170   175

Asp Ala Gly Gly Val Gly Thr Asp Met Ile Thr Met Asn Ala Thr Leu
            180   185   190

Arg Met Leu Tyr Arg Asn Thr Gly Thr Phe Phe Gly Val His Val Thr
        195   200   205

Ser Thr Pro Ile Asp Leu Ser Phe Ser Gln Ile Lys Ile Gly Ser Gly
    210   215   220

Ser Val Lys Lys Phe Tyr Gln Gly Arg Lys Ser Glu Arg Thr Val Leu
225   230   235   240

Val His Val Ile Gly Glu Lys Ile Pro Leu Tyr Gly Ser Gly Ser Thr
            245   250   255

Leu Leu Pro Pro Ala Pro Pro Ala Pro Leu Pro Lys Pro Lys Lys Lys
            260   265   270

Lys Gly Ala Pro Val Pro Ile Pro Asp Pro Pro Ala Pro Pro Ala Pro
        275   280   285

Val Pro Met Thr Leu Ser Phe Val Val Arg Ser Arg Ala Tyr Val Leu
    290   295   300

Gly Lys Leu Val Gln Pro Lys Phe Tyr Lys Lys Ile Glu Cys Asp Ile
305   310   315   320

Asn Phe Glu His Lys Asn Leu Asn Lys His Ile Val Ile Thr Lys Asn
            325   330   335

Cys Thr Val Thr Thr Val
            340

<210> 110
<211> 242
<212> PRT
<213> Arabidopsis thaliana

<400> 110

Met Asp Asp Glu Gln Asn Leu Val Glu Glu Met Asn Gln Gln Leu Leu
1   5   10   15

Ile Thr Val Ile Asp Thr Glu Lys Val Pro Glu Leu Arg Pro Ile Ser
            20   25   30

```
Ser Arg Ser His Gln Glu Ser Glu Pro Ala Asn Ile Ser His Trp Ser
    35                  40                  45

Leu Leu Phe Lys Leu Phe Leu Ala Ile Thr Ile Met Gly Ala Cys Val
    50              55                  60

Ala Gly Val Thr Phe Val Ile Leu Ile Thr Pro Thr Pro Pro Thr Val
65                  70                  75                  80

His Val Gln Ser Met His Ile Ser Phe Ala Asn His Asn Leu Pro Val
                85                  90                  95

Trp Ser Ala Thr Phe Ser Ile Lys Asn Pro Asn Glu Lys Leu His Val
                100             105             110

Thr Tyr Glu Asn Pro Ser Val Trp Leu Val His Arg Gly Lys Leu Val
        115                 120             125

Ser Thr Ala Arg Ala Asp Ser Phe Trp Gln Lys Gly Gly Glu Lys Asn
    130             135             140

Glu Val Ile Val Lys Arg Asn Glu Thr Lys Val Ile Asp Glu Glu Ala
145             150             155             160

Ala Trp Glu Met Glu Asp Glu Val Ala Val Thr Gly Gly Val Val Gly
                165             170             175

Leu Asp Met Val Phe Ser Gly Arg Val Gly Phe Tyr Pro Gly Thr Ser
            180             185             190

Ala Leu Trp Gly Glu Gln Tyr Met Ser Ala Val Cys Glu Asn Val Ser
        195             200             205

Ala Lys Leu Tyr Asn Val Asp Asp Glu Ile Tyr Gly Thr Asn Arg Ser
    210             215             220

Val Leu Ser Phe Asp Gly Arg Leu Val Cys Ser Val Arg Leu Pro Lys
225             230             235             240

Tyr Pro
```